Fact Sheet for NPDES Permit WA0000124

Weyerhaeuser Longview

November 18, 2013

Purpose of this Fact Sheet

This fact sheet explains and documents the decisions the Department of Ecology (Ecology) made in drafting the proposed National Pollutant Discharge Elimination System (NPDES) permit for Weyerhaeuser Longview.

This fact sheet complies with Section 173-220-060 of the Washington Administrative Code (WAC), which requires Ecology to prepare a draft permit and accompanying fact sheet for public evaluation before issuing an NPDES permit.

Ecology makes the draft permit and fact sheet available for public review and comment at least thirty (30) days before issuing the final permit. Copies of the fact sheet and draft permit for Weyerhaeuser Longview; NPDES permit WA0000124, are available for public review and comment from November 18, 2013 until December 19, 2013. For more details on preparing and filing comments about these documents, please see **Appendix A - Public Involvement Information**.

Weyerhaeuser reviewed the draft permit and fact sheet for factual accuracy. Ecology corrected any errors or omissions regarding the facility's location, history, discharges, or receiving water prior to publishing this draft fact sheet for public notice.

After the public comment period closes, Ecology will summarize substantive comments and provide responses to them. Ecology will include the summary and responses to comments in this fact sheet as **Appendix E - Response to Comments**, and publish it when issuing the final NPDES permit. Ecology will not revise the rest of the fact sheet, but the full document will become part of the legal history contained in the facility's permit file.

Summary

Weyerhaeuser NR Company operates two separate wastewater treatment plants at Weyerhaeuser Longview which discharge to the Columbia River. The industrial wastewater treatment plant utilizes primary and secondary treatment for process wastewater and stormwater. The sanitary wastewater treatment plant utilizes anaerobic digestion, an overflow aeration lagoon, and disinfection for sanitary wastewater streams. The wastewater treatment facilities accept wastewater generated on the site and from off-site facilities. Ecology issued the previous NPDES permit on May 11, 2004.

Changes to the existing permit include: a stormwater pollution prevention plan; a water supply plant discharge AKART analysis; a cooling water intake report; a sediment sampling and analysis report; and an outfall 003 and 004 AKART study. The WET characterization required during the first year of the existing permit has been replaced with WET testing once in the last winter and once in the last summer prior to submission of the application for permit renewal.

Parameters with effluent limit changes include: BOD_5 (001/002), TSS (001/002 and 005), AOX (001/002), TCDD (001/002), and chloroform (001/002).

Parameters with new effluent limits include: BOD_5 (003 and 004), fecal coliform (003 and 004), dissolved oxygen (003 and 004).

Additional stormwater benchmarks have been established for outfalls 001/002 Ditch, Adjacent to Export Dock, Cargo Dock, Export Dock, Raw Water Ditch, and RW Office.

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I. Introduction

The Federal Clean Water Act (FCWA, 1972, and later amendments in 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One mechanism for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System (NPDES), administered by the federal Environmental Protection Agency (EPA). The EPA authorized the state of Washington to manage the NPDES permit program in our state. Our state legislature accepted the delegation and assigned the power and duty for conducting NPDES permitting and enforcement to Ecology. The Legislature defined Ecology's authority and obligations for the wastewater discharge permit program in 90.48 RCW (Revised Code of Washington).

The following regulations apply to industrial NPDES permits

- Procedures Ecology follows for issuing NPDES permits (chapter 173-220 WAC)
- Water quality criteria for surface waters (chapter 173-201A WAC)
- Water quality criteria for ground waters (chapter 173-200 WAC)
- Whole effluent toxicity testing and limits (chapter 173-205 WAC)
- Sediment management standards (chapter 173-204 WAC)
- Submission of plans and reports for construction of wastewater facilities (chapter 173-240 WAC)

These rules require any industrial facility owner/operator to obtain an NPDES permit before discharging wastewater to state waters. They also help define the basis for limits on each discharge and for performance requirements imposed by the permit.

Under the NPDES permit program and in response to a complete and accepted permit application, Ecology must prepare a draft permit and accompanying fact sheet, and make them available for public review before final issuance. Ecology must also publish an announcement (public notice) telling people where they can read the draft permit, and where to send their comments, during a period of thirty days (WAC 173-220-050). (See **Appendix A-Public Involvement Information** for more detail about the public notice and comment procedures). After the public comment period ends, Ecology may make changes to the draft NPDES permit in response to comment(s). Ecology will summarize the responses to comments and any changes to the permit in **Appendix E**.

II. Background Information

Table 1 General Facility Information

Facility Information	
Applicant	Weyerhaeuser NR Company
Facility Name and Address	Weyerhaeuser Longview 3401 Industrial Way Longview, Washington 98632
Contact at Facility	Name: Brian Wood Telephone #: (360) 636-7080
Responsible Official	Name: Tim Haynes Title: VP/Mill Manager – Longview Operations Address: PO Box 188, Longview, Washington, 98632 Telephone #: (360) 425-2150 FAX #: (360) 636-6354
Industry Type	Bleached Kraft Pulp and Paper Mill Thermo-Mechanical Pulping, De-Inking, and Newsprint Manufacturing Lumber and Wood Products
Categorical Industry	40 CFR Part 430 Subpart B, G, and I (Pulp & Paper)
Type of Treatment	Industrial: Primary Clarification, Aeration, Secondary Clarification Sanitary: Secondary treatment via anaerobic digestion/overflow aeration lagoon and disinfection
SIC Codes	26 (Pulp and Allied Products) 24 (Lumber and Wood Products)
NAIC Codes	322130 (Paperboard Mills) 322122 (Newsprint Mills) 322110 (Pulp Mills)

Facility Information	
	321113 (Sawmills) 321999 (All Other Miscellaneous Wood Product Manufacturing)
Facility Location (NAD83/WGS84 reference datum)	Latitude: 46.130833 Longitude: -122.990556
Discharge Waterbody Name and Location (NAD83/WGS84 reference datum)	<u>Columbia River – WRIA 25:</u> Discharge 001/002 Latitude: 46.130833 Longitude: -122.990556 001/002 Ditch Latitude: 46.130833 Longitude: -122.990556 Raw Water Ditch Latitude: 46.128056 Longitude: -122.984722 Adjacent to Export Dock Latitude: 46.111667 Longitude: -122.961111 Export Dock Latitude: 46.102778 Longitude: -122.961111 Cargo Dock Latitude: 46.13 Longitude: -122.9775 <u>Consolidated Diking Improvement District Ditch #3 – WRIA 25:</u> Discharge 003 Latitude: 46.1175 Longitude: -122.954167 Discharge 004 Latitude: 46.123611 Longitude: -122.963889 RW Office Latitude: 46.143333 Longitude: -122.980556

Permit Status	
Renewal Date of Previous Permit	May 11, 2004
Application for Permit Renewal Submittal Date	December 8, 2008 with revisions received December 1, 2009
Date of Ecology Acceptance of Application	January 26, 2009

Inspection Status	
Date of Last Sampling Inspection	June 12, 2013
Date of Last Non-sampling Inspection Date	May 21, 2013

Figure 1 Facility Location Map

A. Facility Description

History

The approximately 700-acre, Weyerhaeuser Longview facility is located in Longview, Washington along the shores of the Columbia River, northwest of the Lewis and Clark Bridge. The site consists of multiple sources of water pollution which discharge to the wastewater treatment facilities. In two separate systems, Weyerhaeuser Longview treats industrial wastewater/stormwater and sanitary wastewater.

On site, Weyerhaeuser NR Company (Weyerhaeuser) owns and operates a:

- Kraft Pulp Mill
- Liquid Packaging Paper Machine
- Extruder Operations
- Saw Mill
- Planer Mill
- Lumber Drying Kiln
- Log Yard and Log Export Operations
- Solid Waste Material Recovery and Transfer Facility
- Log Truck Shop

A thermo-mechanical/de-ink/newsprint mill (NORPAC) operates on-site as a 50/50 joint venture between Weyerhaeuser and Nippon Paper. NORPAC consists of 9 refiner lines and 3 paper machines, located at NORPAC I, II, and III.

Weyerhaeuser accepts additional wastewater for treatment from:

- Columbia and Cowlitz Railway Locomotive Maintenance Shop
- Headquarters Road and Mt. Solo Landfills
- Hasa (sodium hypochlorite repackaging)
- Mint Farm Generation (natural gas fired power generation)
- Eagle US 2 facility, owned and operated by Axiall LLC(chloro-alkali manufacturing)
- Solvay (hydrogen peroxide manufacturing)
- Specialty Minerals Longview (calcium carbonate manufacturing)

Industrial Processes

<u>Bleached Paper Grade Kraft Mill</u>

Weyerhaeuser constructed the kraft mill in 1948. Weyerhaeuser completed mill expansion in 1958 which was followed by optimization projects through 1992. The kraft mill and

paperboard machine are referred to as Weyerhaeuser Liquid Packaging. The kraft mill produces approximately 830 off-machine tons (OMT) of bleached paperboard and 365 air-dried tons (ADT) of wet lap each day. Weyerhaeuser Longview generates approximately 25.2 million gallons per day (MGD) of wastewater from the processes that produce these products.

The process begins when pre-steamed wood chips and white liquor (a solution of Na_2S and NaOH), are fed to an impregnation vessel and then a Kamyr continuous digester, where delignification occurs at high temperature and pressure. The first stage of pulp washing is conducted a high pressure in the pressure diffusion washer before being discharged into two atmospheric blow tanks. The unbleached pulp, also known as brown stock, is screened for knots, is washed, and has the black liquor (spent white liquor, lignin, and other organics) removed for the chemical recovery of Na_2S and NaOH.

The brown stock goes through an additional step of delignification in the oxygen delignification systems. The pulp is then bleached at the bleach plant and sent to the paper machines on site or the wetlap pulp machine.

North Pacific Paper Corporation (NORPAC)

NORPAC is a 50/50 joint venture between Weyerhaeuser and Nippon Paper Corporation, producing deink pulp, TMP pulp, and newsprint. NORPAC generates approximately 16 MGD of wastewater for treatment. Approximately one third of the wastewater volume and two thirds of the biochemical oxygen demand (BOD) loading to the industrial wastewater treatment facility originate from NORPAC.

NORPAC I, consisting of Paper Machine 1, TMP Mill 1, and the first four TMP refiner lines, produces thermo-mechanical paper.

NORPAC II, consisting of Paper Machine 2, TMP Mill 2, and four additional TMP refiner lines, produces thermo-mechanical paper. Subsequent to the NORPAC II Project, a ninth refiner line was added in 1982.

NORPAC III, consisting of Paper Machine 3 and the deinking facility, produces thermo-mechanical paper and newsprint de-ink.

Saw Mill

Weyerhaeuser constructed the saw mill in 2008 with a projected production rate of 450 million board feet (MMbf) per year. The maximum production capacity is an estimated 500 MMbf per year. At the saw mill, logs are received then cut. Production at the saw mill is sent to the lumber drying kilns and planer mill for dimensioning and finishing.

Planer Mill and Lumber Drying Kilns

The lumber from the saw mill is either sent to the lumber drying kiln to be dried before being sent to the planer mill or is sent directly to the planer mill to be planed and shipped green.

Extruder

The extruder operation, formerly owned and operated by Pacific Lamination, applies a polymeric coating to paper for use in liquid packaging (milk cartons and drink boxes).

Pellets of the polymeric materials (primarily low-density polyethylene) used for coating are shipped to the facility by rail. They are unloaded pneumatically and stored in storage silos.

Paperboard stock, for polymeric coating, arrives in 10-foot diameter rolls and is fed through one of two extrusion lines (Line 6 or Line 7). Each extrusion line consists of a pre-treatment burner, two extruders, and a corona discharge unit. The pre-treatment burners are used to prepare the paper for application of the polymeric coating, ensuring proper temperature, moisture content, and cleanliness. The two extruders in each line apply the polymeric coating to each side of the paper and the corona discharge unit treats the coated paperboard, preparing it for printing.

Material Recovery Facility (MRF)

The Weyerhaeuser Longview facility disposes of solid waste material generated in accordance with Federal, State, and local requirements. Waste is disposed of in a manner which prevents their entry into surface and groundwater. Solid waste materials include: primary treatment sludge, secondary treatment sludge, slaker grits, boiler ash, paper waste, and other miscellaneous waste. Weyerhaeuser handles solid waste at the Material Recovery Facility (MRF) for shipment by truck to the Headquarters Road Landfill. Leachate and stormwater generated is treated through the industrial wastewater treatment plant.

Wastewater Treatment Processes

Industrial Wastewater Treatment

The industrial wastewater treatment system consists of a primary clarifier, three deep aeration tanks, four secondary clarifiers, and an auxiliary retention pond. Total retention time through the system is approximately 24 hours. System components and basic configuration can be seen in Figures 2 and 3.

The Weyerhaeuser Longview facility sends wastewater containing high solids-loading to the primary clarifier. The primary clarifier is 295 feet in diameter with a capacity of 7.2 million gallons, producing approximately a 25 percent BOD reduction and an 85 to 98 percent TSS reduction. From the primary clarifier, Weyerhaeuser sends wastewater to either a cooling tower if it is above 97° F and then to the No. 1 splitter, or directly to the No. 1 splitter.

From the No. 1 splitter, the wastewater goes to two or all three deep tanks for aeration. The two original aeration tanks are 5.1 and 7.2 million gallons in size. Weyerhaeuser installed an additional 7.2 million gallon aeration tank for added capacity.

The aerated wastewater is then divided among the four secondary clarifiers, each 210 feet in diameter and having a capacity of 3.9 million gallons. A BOD removal efficiency of 85 to 99 percent is achieved through secondary treatment. Treated water from the secondary clarifiers flows by gravity through a series of above ground pipes to the outfall 001/002 junction box before being discharged through Outfalls 001 and 002. Total effluent discharge from Outfalls 001 and 002 averages 50 MGD.

The west pond, located on the northwestern most portion of the site, has a capacity of approximately 11 million gallons. It is used as a clarifier during primary clarifier maintenance and as wastewater storage during upset or potentially hazardous wastewater flow conditions.

Figure 2 Effluent Treatment Overview

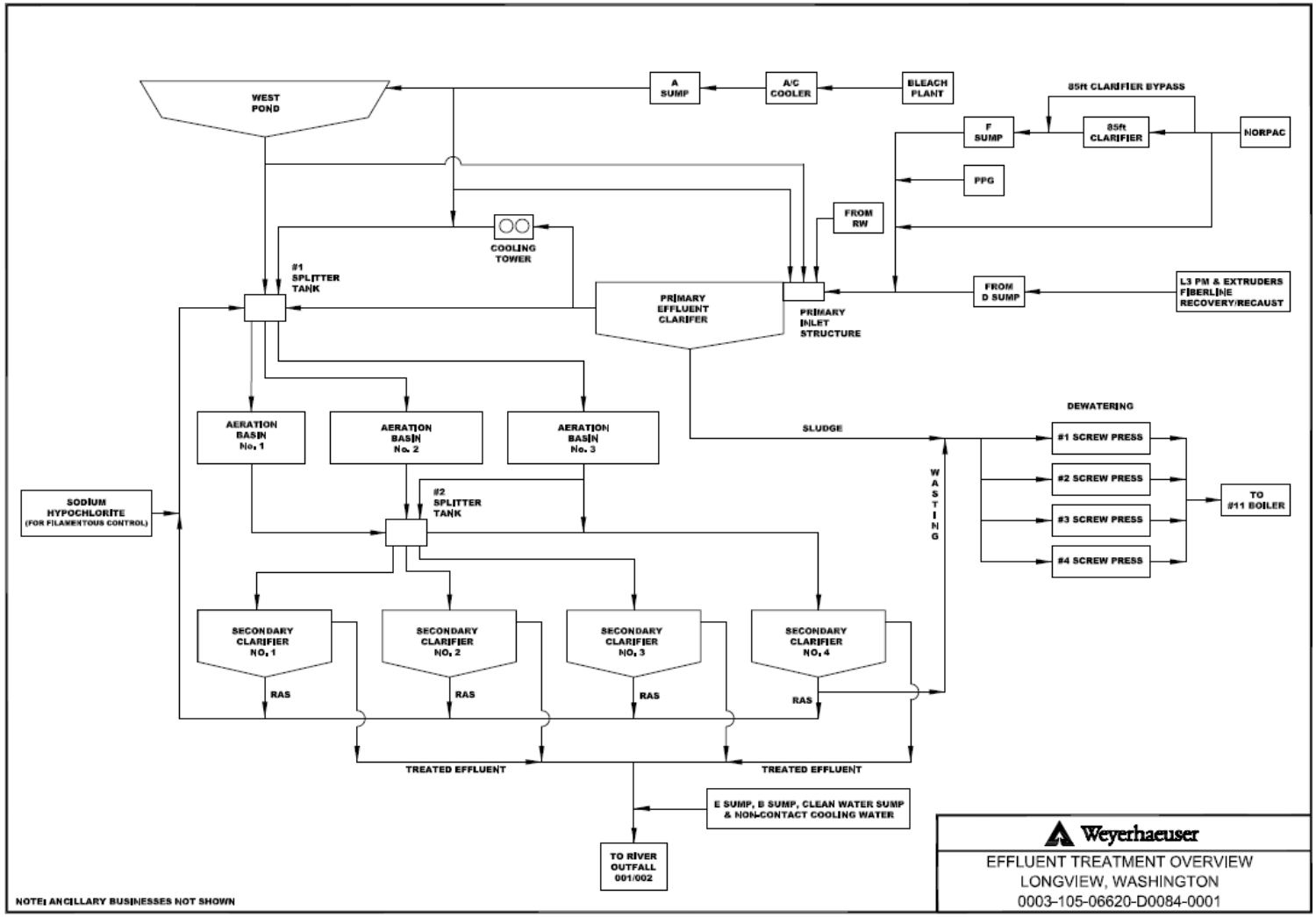
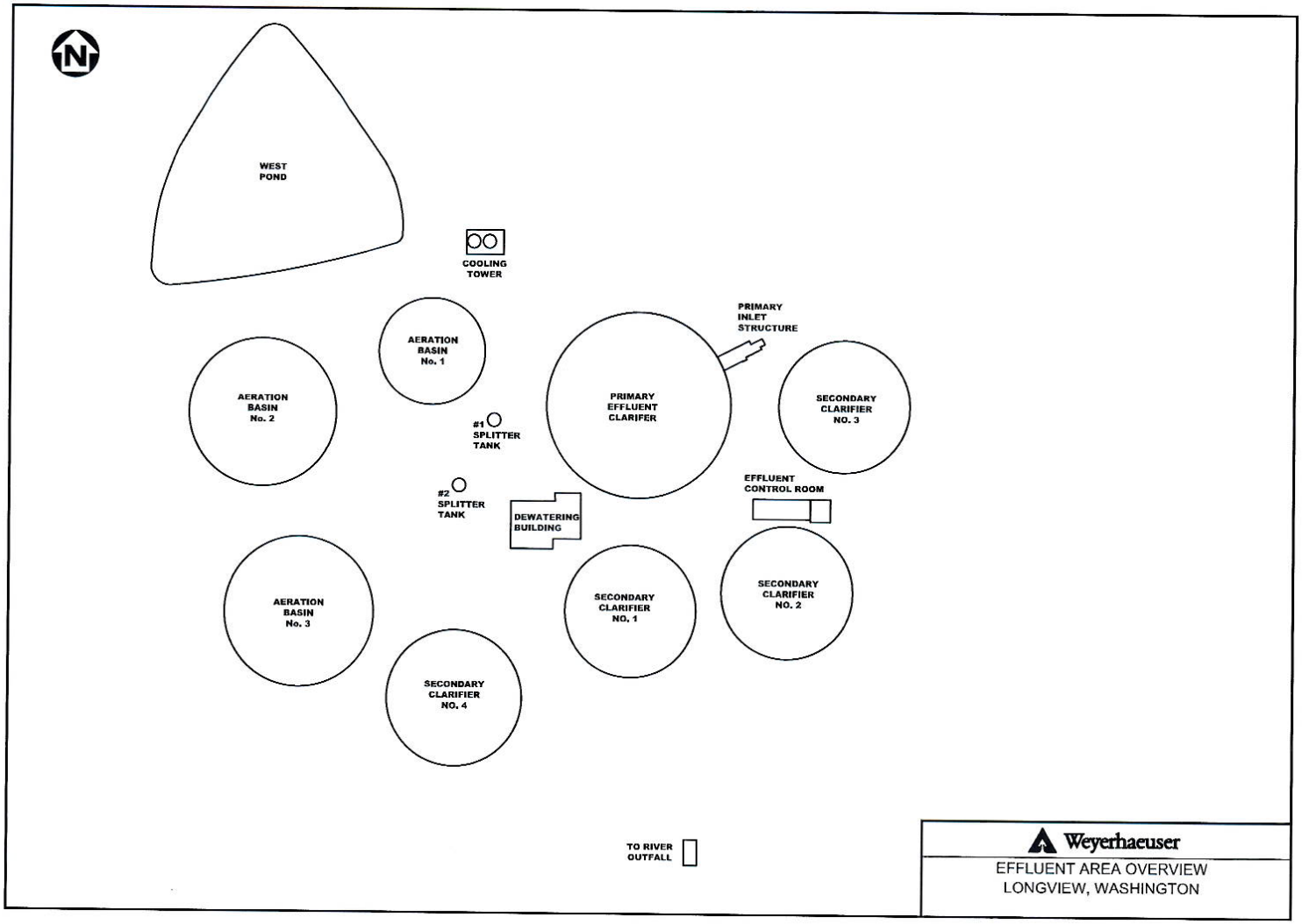


Figure 3 Effluent Area Overview



Sanitary Wastewater Treatment

The sanitary wastewater treatment system begins with primary treatment in an Imhoff tank. Solids collected are anaerobically digested in the tank and then disposed of as agricultural boisolids. Overflow from the tank is treated in a 1.6 million gallon aeration lagoon with a 3 week retention time. Overflow from the lagoon goes through a chlorine contact chamber prior to being discharged at Outfall 005. Effluent discharged from Outfall 005 averages 0.06 MGD.

Stormwater Treatment

The Weyerhaeuser Longview facility sends stormwater from process areas to the industrial wastewater treatment system. Non-process stormwater and process water from some truck/equipment washes, dust control, and area wash-up go to Outfalls 003 or 004 for discharge to Consolidated Diking Improvement District Ditch #3 (CDID Ditch #3). Water conveyed to Outfall 003 collects in a detention pond (East pond) for sedimentation before discharge by a v-notch weir structure to CDID Ditch #3. Sodium carbonate is added to the East pond as a pH control measure.

Discharge Outfalls

The Weyerhaeuser Longview facility discharges water through five primary outfalls: 001, 002, 003, 004 and 005. The Bleach Plant Discharge is an internal monitoring point. Information regarding the latitude and longitude of each outfall can be found in Table 1.

Outfalls 001 and 002 are located on the western portion of the Weyerhaeuser Longview site. They are parallel, pile-supported, wooden stave pipes which extend into the Columbia River at an approximate angle of 35 degrees relative to the shoreline. Outfall 001 is 840 feet in length, 54 inches in diameter, and ends with a 320-foot, submerged diffuser section. Outfall 002 is 1,490 feet in length, 48 inches in diameter, and ends with a 300-foot, submerged diffuser section. The outfalls discharge non-contact cooling water, filter bed backwash, and industrial and sanitary wastewater treatment facility effluent. The non-contact cooling water, filter bed backwash, and industrial wastewater streams combine at the Outfall 001/002 junction box prior to discharge through Outfalls 001 and 002. The sanitary wastewater stream combines with the Outfall 001 effluent after the junction box.

Outfall 003 is located on the southeastern-most portion of the site along Industrial Way. Stormwater from the southeastern portion of the site, truck/equipment wash water, dust control water, and area wash-up water collect in a detention pond (East Pond) prior to discharge, by a v-notch weir, into CDID Ditch #3.

Outfall 004 is located along Industrial Way, northwest of Outfall 003. Stormwater from the central portion of the site, car/truck wash water, dust control water, area wash-up water, process cooling/HVAC water, and equipment wash water discharge by a v-notch weir prior to conveyance to CDID Ditch #3.

Outfall 005 is an internal outfall that is located at the sanitary wastewater treatment facility, west of the kraft mill and south of the industrial wastewater treatment facility, along the

shores of the Columbia River. Outfall 005 is piped into the wood stave pipe of Outfall 001 and discharges into the Columbia River through the 001 diffuser.

Minor stormwater outfalls receive no treatment prior to discharge. These outfalls include:

- RW Office which discharges into CDID Ditch #3.
- Adjacent to Export Dock which discharges into the Columbia River.
- Raw Water which discharges into the Columbia River.
- Cargo Dock which discharges into the Columbia River.
- 001/002 Ditch which discharges into the Columbia River.
- Export Dock which discharges into the Columbia River.

Raw Water Treatment Processes

Water Supply Plant

The water supply intake is located on the shore of the Columbia River southeast of the sanitary wastewater treatment plant. Raw water from the Columbia River travels through bar screens and a travelling screen. The wire cloth openings on the travelling screen are 1/8th inch. The design face velocity for the traveling screens is 1.47 feet per second.

After the travelling screens, the water is pumped to four separate water treatment plants. The water is pretreated by the addition of sodium hypochlorite (disinfection), alum (flocculent), and sodium silicate (coagulant). The water is treated in sedimentation basins, followed by filtration through sand filters. The sand filters are backwashed on a 24 to 27 hour frequency; backwash is discharged through the 001/002 outfalls. The sedimentation basins are washed out annually; washout is discharged through the 001/002 outfalls.

Weyerhaeuser uses the finished water to satisfy its manufacturing water demand. In 2012, average daily water intake rate was 57.8 million gallons per day (MGD). The maximum daily water intake rate in 2012 was 77 MGD. In 2012, Weyerhaeuser discharged approximately 4.6 MGD of cooling water from outfalls 001 and 002.

The sediment loading to Weyerhaeuser Longview's water supply plant are unique due to conditions resulting from the eruption of Mt. St. Helens. Based on this unique sediment loading, the Pollution Control Hearing Board determined that Weyerhaeuser Longview should be permitted to discharge filter backwash and basin washout into the Columbia River (Decision No. 85-220). In the late 1980's, a sediment retention structure (SRS) was put in place on the Toutle River to trap sediment from the Mt. St. Helens eruption. The SRS has since filled and sediment loading to the Toutle, Cowlitz, and Columbia River has increased and continue to put additional demands on Weyerhaeuser Longview's water supply plant.

B. Description of the Receiving Water

The Weyerhaeuser Longview facility discharges to the Columbia River near river mile 63.5 and CDID Ditch #3. Other nearby point source outfalls include those belonging to Longview Fibre, the Three Rivers Regional Wastewater plant, and the City of Rainier wastewater

treatment plant. The discharges for Longview Fibre and Three Rivers Regional Wastewater plant are located approximately 4 miles upstream from Weyerhaeuser Longview. The discharge for the City of Rainier wastewater treatment plant is approximately 3 miles upstream and across river from Weyerhaeuser Longview. During the winter, raw sewage overflows due to storm events greater in size than a one-in-five-year event are permitted from the City of Rainier wastewater treatment plant.

Significant nearby non-point sources of pollutants include livestock and silviculture runoff into the Cowlitz River which discharges into the Columbia River upstream of Weyerhaeuser Longview.

The drinking water intake for the City of Rainier, Oregon is located on the Columbia River, approximately ¼ mile upstream from the City of Rainier wastewater treatment plant. The City of Longview does not have an active drinking water intake on the Columbia and will be switching to groundwater sources in the Mint Farm area in the near future.

Designated uses of for this section of the Columbia River include: fish spawning, rearing, and harvesting; primary contact recreation; water supply (domestic, industrial, agricultural); stock water; wildlife habitat; commerce and navigation; and boating and aesthetic enjoyment (WAC 173-201A-602). These uses will be discussed in detail later in the fact sheet.

The ambient background data used for this permit includes the following from the *Outfall Dilution and Temperature Study* dated January 20, 2004 prepared by CH2M Hill, the *Receiving Water Study* dated October 30, 2008 prepared by Integral Consulting, the *Fact Sheet for NPDES Permit WA0037788, Three Rivers Regional Wastewater Authority* dated 2007 prepared by Ecology, and USGS's *Water-Data Reports* dated 2007, 2010, and 2011.

This permit does not require Weyerhaeuser Longview to conduct an additional receiving water study. The United States Geological Survey (USGS) collects ambient water data from the Beaver Army Terminal station. This data is sufficient to characterize the ambient water quality and provides conservative values for calculating water quality based effluent limits. In the event that data collection at the Beaver Army Terminal station is terminated and Ecology deems the data will no longer be representative at the time of permit expiration, Ecology may require a receiving water study be conducted by Weyerhaeuser Longview, if practicable.

Table 2 Ambient Background Data

Parameter	Value Used
Temperature (highest annual 1-DADMax) [a]	22.32 ° C on August 2, 2000
Temperature (highest annual 7-DADMax) [a]	22.03 ° C
pH (Maximum / Minimum) [b]	8.3 / 7.32 standard units
Dissolved Oxygen [c]	7.9 mg/L

Table 2 Ambient Background Data

Parameter	Value Used
Total Ammonia-N [d]	0.01 – 0.03 mg/L
Phosphorus, unfiltered [f]	0.05 mg/L as P
Sulfate, filtered [f]	9.21 mg/L
Fecal Coliform [e]	52.2/100 mL dry weather
Turbidity [e]	9.8 NTU
Hardness [b]	50-57 mg/L as CaCO3
Alkalinity, filtered [f]	49.5 mg/L as CaCO3
Aluminum, filtered [g]	4.5 µg/L
Arsenic, filtered [f]	0.80 µg/L
Boron, filtered [f]	9.9 µg/L
Cadmium, filtered [g]	0.02 µg/L
Chromium [d]	<0.5 µg/L
Copper, Total [d]	0.9 – 1.2 µg/L
Iron, filtered [f]	31.2 µg/L
Lead [d]	<0.5 µg/L
Magnesium, filtered [f]	4,140 µg/L
Nickel, filtered [f]	0.39 µg/L
Selenium, filtered [f]	0.13 µg/L
Zinc, Total [d]	<4 µg/L

[a] Ambient temperatures taken from Appendix A of CH2M Hill's *Outfall Dilution and Temperature Study, Longview Mill Outfalls 001 And 002, Weyerhaeuser Company, Longview, Washington, 2004.* The Upstream River Temperature Site (Station UP-1) located at RM 64.

[b] Maximum pH value taken from Integral Consulting's *Receiving Water Study, Weyerhaeuser Longview Mill, Longview, Washington, 2008.* Minimum pH value and Hardness taken from Appendix D, Table D-1 of CH2M Hill's *Outfall Dilution and Temperature Study, Longview Mill Outfalls 001 And 002, Weyerhaeuser Company, Longview, Washington, 2004.*

[c] Ambient dissolved oxygen value calculated from arithmetic mean of measurements recorded in Appendix B, Table B-8 and B-9 of CH2M Hill's *Outfall Dilution and Temperature Study, Longview Mill Outfalls 001 And 002, Weyerhaeuser Company, Longview, Washington, 2004.*

[d] Ambient values taken from Integral Consulting's *Receiving Water Study, Weyerhaeuser Longview Mill, Longview, Washington, 2008.*

[e] Ambient value taken from Ecology's *Fact Sheet for NPDES Permit WA0037788, Three Rivers Regional Wastewater Authority, 2007.*

[f] Geometric mean ambient values calculated from USGS's *Water-Data Reports, 14246900 Columbia River at Beaver Army Terminal, Near Quincy, OR, 2010 and 2011.*

C. Wastewater Characterization

Weyerhaeuser Longview reported the concentration of pollutants in the discharge in the permit application and in discharge monitoring reports. Discharge monitoring report data from November 2010 to October 2012 were used to best represent the quality of the wastewater effluent at the time of permit renewal when applicable.

When concentrations of pollutants in the discharge were not reported in the discharge monitoring reports, data from Weyerhaeuser NR Company's NPDES application Form 2C, Ecology's *June 21, 2010 Class II Inspection* report, and Priority Pollutant Scan results for 2007, 2008, 2009, 2010, 2011, and 2012 were used.

The wastewater effluent is characterized as follows:

Table 3 Effluent Characterization for Outfall 001

Parameter	Units	Average Value	Maximum Value
Biochemical Oxygen Demand (BOD_5) [a]	mg/L	5.1	38.6
Total Suspended Solids (TSS) [a]	mg/L	11.1	56.6
Turbidity [b]	NTU	20.0	20.0
AOX [a]	lb/day	647	2,034
Chemical Oxygen Demand (COD) [a]	mg/L	338	852
Temperature [a]	°C	N/A	46.6

Parameter	Units	# of Samples	Average Value	Maximum Value
Total Organic Carbon (TOC) [c]	mg/L	1	48	48
Ammonia (as N) [c]	mg/L	1	0.19	0.19
Bromide [c]	mg/L	1	0.66	0.66
Chlorine, Total Residual [c]	mg/L	1	0.13	0.13
Color [c]	Color	1	350	350
Fecal Coliform [c]	#/100mL	2	3	3
Fluoride [c]	mg/L	1	0.18	0.18
Nitrate-Nitrite (as N) [c]	mg/L	1	0.05	0.05
Nitrogen, Total Organic (as N) [c]	mg/L	1	2.8	2.8
Phosphorus, Total (as P) [c]	mg/L	1	0.63	0.63
Sulfate (as SO_4) [c]	mg/L	1	130	130
Aluminum, Total [c]	µg/L	1	700	700
Barium, Total [c]	µg/L	1	57.7	57.7
Boron, Total [c]	µg/L	1	43	43
Iron, Total [c]	µg/L	1	110	110
Magnesium, Total [c]	µg/L	1	25,200	25,200
Molybdenum, Total [c]	µg/L	1	2.3	2.3
Manganese, Total [c]	µg/L	1	424	424
Arsenic, Total [d]	µg/L	6	1.7	3.4
Cadmium, Total [d]	µg/L	6	2.0	8.0
Chromium, Total [d]	µg/L	6	4.5	8.0

Parameter	Units	# of Samples	Average Value	Maximum Value
Copper, Total [d]	µg/L	6	6.1	9.1
Mercury, Total [d]	ng/L	6	5.9	13.9
Nickel, Total [d]	µg/L	6	2.4	3.8
Antimony, Total [d]	µg/L	6	0.4	0.7
Zinc, Total [d]	µg/L	6	37.7	54
Chloroform, Total [d]	µg/L	24	18.75	83
Bromodichloromethane[d]	µg/L	24	1.45	6
Dichloro-difluoromethane [c]	µg/L	1	2	2
2,4,6-Trichlorophenol[d]	µg/L	5	1.7	6
Pentachlorophenol[d]	µg/L	5	0.9	2

Parameter	Units	# of Samples	Minimum Value	Maximum Value
pH[a]	standard units	Cont.	5.4	7.8

[a] Values from November 2010 through October 2011 discharge monitoring reports.
[b] Values from Ecology's *June 21, 2010 Class II Inspection* report.
[c] Values from NPDES renewal application Form 2C submitted by Weyerhaeuser NR Company in 2008.
[c] Values from Priority Pollutant Scan 2007, 2008, 2009, 2010, 2011, and 2012.

Table 4 Effluent Characterization for Outfall 002

Parameter	Units	Average Value	Maximum Value
Biochemical Oxygen Demand (BOD_5)[a]	mg/L	5.1	38.6
Total Suspended Solids (TSS) [a]	mg/L	20.0	20.0

Parameter	Units	Average Value	Maximum Value
Turbidity [b]	NTU	15.2	19
Adsorbable organic halides (AOX) [a]	lb/day	647	2,034
Chemical Oxygen Demand (COD) [a]	mg/L	338	852
Temperature [a]	°C	N/A	43.4

Parameter	Units	# of Samples	Average Value	Maximum Value
Total Organic Carbon (TOC) [c]	mg/L	1	52	52
Ammonia (as N) [c]	mg/L	1	0.20	0.20
Bromide [c]	mg/L	1	0.66	0.66
Chlorine, Total Residual [c]	mg/L	1	0.10	0.10
Color [c]	Color	1	350	350
Fecal Coliform [c]	#/100mL	2	<3	<3
Fluoride [c]	mg/L	1	0.16	0.16
Nitrate-Nitrite (as N) [c]	mg/L	1	0.05	0.05
Nitrogen, Total Organic (as N) [c]	mg/L	1	2.7	2.7
Phosphorus, Total (as P) [c]	mg/L	1	0.56	0.56
Sulfate (as SO_4) [c]	mg/L	1	135	135
Aluminum, Total [c]	µg/L	1	760	760
Barium, Total [c]	µg/L	1	59.0	59.0
Boron, Total [c]	µg/L	1	44	44

Parameter	Units	# of Samples	Average Value	Maximum Value
Iron, Total [c]	µg/L	1	130	130
Magnesium, Total [c]	µg/L	1	26,300	26,300
Molybdenum, Total [c]	µg/L	1	2.2	2.2
Manganese, Total [c]	µg/L	1	429	429
Arsenic, Total [d]	µg/L	6	1.5	2.6
Cadmium, Total [d]	µg/L	6	0.89	1.9
Chromium, Total [d]	µg/L	6	4.5	7.9
Copper, Total [d]	µg/L	6	6.25	8.6
Mercury, Total [d]	ng/L	6	7.3	13.5
Nickel, Total [d]	µg/L	6	1.96	3.9
Antimony, Total [d]	µg/L	6	0.44	0.7
Zinc, Total [d]	µg/L	6	37.8	48
Chloroform, Total [d]	µg/L	24	18.8	85
Bromodichloromethane [d]	µg/L	24	1.3	6
Dichloro-difluoromethane [c]	µg/L	1	1	1

Parameter	Units	# of Samples	Minimum Value	Maximum Value
pH [a]	standard units	Cont.	4.7	7.8

[a] Values from November 2010 through October 2011 discharge monitoring reports.
[b] Values from Ecology's *June 21, 2010 Class II Inspection* report.
[c] Values from NPDES renewal application Form 2C submitted by Weyerhaeuser NR Company in 2008.
[d] Values from Priority Pollutant Scan 2007, 2008, 2009, 2010, 2011, and 2012.

Table 5 Effluent Characterization for Outfall 003

Parameter	Units	Average Value	Maximum Value
Biochemical Oxygen Demand (BOD_5)[a]	mg/L	50.1	158.4
Total Suspended Solids (TSS) [a]	mg/L	56.2	112.4
Dissolved Oxygen [a]	mg/L	4.6	N/A
Oil and Grease [a]	mg/L	2.6	10.0
Fecal Coliform [a]	#/100mL	346	160,000

Parameter	Units	# of Samples	Measured Value
Total Organic Carbon (TOC)[b]	mg/L	1	9
Chlorine, Total Residual [b]	mg/L	1	0.01
Color [b]	Color	1	60
Fluoride [b]	mg/L	1	0.16
Nitrogen, Total Organic (as N) [b]	mg/L	1	0.34
Phosphorus, Total (as P) [b]	mg/L	1	0.10
Sulfate (as SO_4) [b]	mg/L	1	13
Sulfite (as SO_3) [b]	mg/L	1	0.10
Aluminum, Total [b]	µg/L	1	210
Barium, Total [b]	µg/L	1	21.7
Boron, Total [b]	µg/L	1	15
Iron, Total [b]	µg/L	1	710
Magnesium, Total [b]	µg/L	1	3,620
Molybdenum, Total [b]	µg/L	1	0.6

Parameter	Units	# of Samples	Measured Value
Manganese, Total [b]	µg/L	1	57
Copper, Total [b]	µg/L	1	1.0
Mercury, Total [b]	ng/L	1	3.1
Nickel, Total [b]	µg/L	1	0.5
Zinc, Total [b]	µg/L	1	11
Chloroform, Total [b]	µg/L	1	10
Dichloro-difluoromethane [b]	µg/L	1	2

Parameter	Units	# of Samples	Minimum Value	Maximum Value
pH [a]	standard units	104	5.8	7.8

[a] Values from November 2010 through October 2011 discharge monitoring reports.
[b] Values from NPDES renewal application Form 2C submitted by Weyerhaeuser NR Company in 2008.

Table 6 Effluent Characterization for Outfall 004

Parameter	Units	Average Value	Maximum Value
Biochemical Oxygen Demand (BOD_5)[a]	mg/L	2.1	6.2
Total Suspended Solids (TSS) [a]	mg/L	14.3	55.5
Dissolved Oxygen [a]	mg/L	4.7	N/A
Oil and Grease [a]	mg/L	2.0	2.0
Fecal Coliform [a]	#/100mL	182	3,000

Parameter	Units	# of Samples	Measured Value
Total Organic Carbon (TOC) [b]	mg/L	1	9
Ammonia (as N) [b]	mg/L	1	0.03
Chlorine, Total Residual [b]	mg/L	1	0.05
Color [b]	Color	1	60
Fluoride [b]	mg/L	1	0.54
Nitrate-Nitrite (as N) [b]	mg/L	1	0.11
Nitrogen, Total Organic (as N) [b]	mg/L	1	0.58
Phosphorus, Total (as P) [b]	mg/L	1	0.14
Sulfate (as SO_4) [b]	mg/L	1	8.4
Aluminum, Total [b]	µg/L	1	48
Barium, Total [b]	µg/L	1	15.6
Boron, Total [b]	µg/L	1	25
Iron, Total [b]	µg/L	1	2,400
Magnesium, Total [b]	µg/L	1	3,050
Molybdenum, Total [b]	µg/L	1	0.6
Manganese, Total [b]	µg/L	1	290
Arsenic, Total [b]	µg/L	1	1.6
Chromium, Total [b]	µg/L	1	0.5
Copper, Total [b]	µg/L	1	1.3
Mercury, Total [b]	ng/L	1	3.9
Nickel, Total [b]	µg/L	1	1.0
Zinc, Total [b]	µg/L	1	11

Parameter	Units	# of Samples	Measured Value
Di-N-butyl-Phthalate [b]	µg/L	1	5

Parameter	Units	# of Samples	Minimum Value	Maximum Value
pH [a]	standard units	104	6.3	7.6

[a] Values from November 2010 through October 2011 discharge monitoring reports.
[b] Values from NPDES renewal application Form 2C submitted by Weyerhaeuser NR Company in 2008.

Table 7 Effluent Characterization for Outfall 005

Parameter	Units	Average Value	Maximum Value
Biochemical Oxygen Demand (BOD_5)[a]	mg/L	1.6	6.5
Total Suspended Solids (TSS) [a]	mg/L	2.1	4.4
Fecal Coliform [a]	#/100mL	<2	<2
Chlorine, Total Residual [a]	mg/L	2.9	5.8

Parameter	Units	# of Samples	Measured Value
Total Organic Carbon (TOC) [b]	mg/L	1	7
Ammonia (as N) [b]	mg/L	1	21
Bromide [b]	mg/L	1	0.23
Color [b]	Color	1	70
Fluoride [b]	mg/L	1	0.54
Nitrate-Nitrite (as N) [b]	mg/L	1	1.5
Nitrogen, Total Organic (as N) [b]	mg/L	1	2

Parameter	Units	# of Samples	Measured Value
Phosphorus, Total (as P) [b]	mg/L	1	3.5
Sulfate (as SO_4) [b]	mg/L	1	11
Surfactants [b]	mg/L	1	0.08
Aluminum, Total [b]	µg/L	1	16
Barium, Total [b]	µg/L	1	8.9
Boron, Total [b]	µg/L	1	89
Iron, Total [b]	µg/L	1	450
Magnesium, Total [b]	µg/L	1	3,050
Molybdenum, Total [b]	µg/L	1	1.3
Manganese, Total [b]	µg/L	1	125
Arsenic, Total [b]	µg/L	1	1.1
Copper, Total [b]	µg/L	1	1.6
Mercury, Total [b]	ng/L	1	9.4
Nickel, Total [b]	µg/L	1	2.3
Zinc, Total [b]	µg/L	1	11
Phenols [b]	mg/L	1	0.01
Chloroform [b]	µg/L	1	4
Dichloro-bromomethane [b]	µg/L	1	1

Parameter	Units	# of Samples	Minimum Value	Maximum Value
pH [a]	standard units	520	6.7	7.7

[a] Values from November 2010 through October 2011 discharge monitoring reports.
[b] Values from NPDES renewal application Form 2C submitted by Weyerhaeuser NR Company in 2008.

Table 8 Effluent Characterization for Stormwater 001/002 Ditch

Parameter	Units	Average Value	Maximum Value
Biochemical Oxygen Demand (BOD_5)[a]	mg/L	2.5	3.2
Zinc [a]	µg/L	143	230

Parameter	Units	Minimum Value	Maximum Value
pH [a]	standard units	7.3	7.3

[a] Values from NPDES renewal application Form 2C submitted by Weyerhaeuser NR Company in 2008.

Table 9 Effluent Characterization for Stormwater Adjacent to Export Dock

Parameter	Units	Average Value	Maximum Value
Biochemical Oxygen Demand (BOD_5)[a]	mg/L	287	690
Zinc [a]	µg/L	110	170

Parameter	Units	Minimum Value	Maximum Value
pH [a]	standard units	5.0	6.8

[a] Values from NPDES renewal application Form 2C submitted by Weyerhaeuser NR Company in 2008.

Table 10 Effluent Characterization for Stormwater Cargo Dock

Parameter	Units	Average Value	Maximum Value
Biochemical Oxygen Demand (BOD_5) [a]	mg/L	9.3	20
Zinc [a]	µg/L	225	570

Parameter	Units	Minimum Value	Maximum Value
pH [a]	standard units	5.4	7.0

[a] Values from NPDES renewal application Form 2C submitted by Weyerhaeuser NR Company in 2008.

Table 11 Effluent Characterization for Stormwater RW Office

Parameter	Units	Average Value	Maximum Value
Biochemical Oxygen Demand (BOD_5) [a]	mg/L	8.9	10
Zinc [a]	µg/L	<10	10

Parameter	Units	Minimum Value	Maximum Value
pH [a]	standard units	7.0	7.1

[a] Values from NPDES renewal application Form 2C submitted by Weyerhaeuser NR Company in 2008.

D. Summary of Compliance with Previous Permit Issued

The previous permit placed effluent limits on Outfalls 001, 002, 003, 004, and 005, and the bleach plant discharge.

Outfalls 001/002 have effluent limits on:

- TSS
- BOD5
- pH
- AOX
- 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)

Outfall 003 and 004 have effluent limits on:

- pH
- Settleable Solids
- Oil and Grease

Outfall 005 has effluent limits on:

- BOD5

- TSS
- Fecal Coliform
- Chlorine Residual
- pH

Bleach Plant Discharge has effluent limits on:

- 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)
- 2,3,7,8-tetrachlorodibenzofuran (TCDF)
- Chloroform
- Trichlorosyringol
- 3,4,5-trichlorocatechol
- 3,4,6-trichlorocatechol
- 3,4,5-trichloroguaiacol
- 3,4,6-trichloroguaiacol
- 4,5,6-trichloroguaiacol
- 2,4,5-trichlorophenol
- 2,4,6-trichlorophenol
- Tetrachlorocatechol
- Tetrachloroguaiacol
- 2,3,4,6-tetrachlorophenol
- Pentachlorophenol

Weyerhaeuser Longview has generally complied with the effluent limits and permit conditions of the permit issued on May 11, 2004. Ecology assessed compliance based on its review of the facility's information in the Ecology Permitting and Reporting Information System (PARIS), discharge monitoring reports (DMRs) and on inspections.

The following table summarizes the violations that occurred during the permit term.

Table 12 Violations

Begin Date	Monitoring Point	Parameter	Statistical Base	Units	Value	Limit Min/Max	Violation
07/01/13	001/002	BOD5	Daily Maximum	Lbs per day	52100	49660	Numeric Effluent Violation

Begin Date	Monitoring Point	Parameter	Statistical Base	Units	Value	Limit Min/Max	Violation
02/01/13	003	pH (Daily Min)	Minimum	Standard Units	5.9	6	Numeric Effluent Violation
05/01/11	003	pH (Daily Min)	Minimum	Standard Units	5.8	6	Numeric Effluent Violation
05/01/10	004	pH (Daily Min)	Minimum	Standard Units	4.5	6	Numeric Effluent Violation
05/01/10	004	Settleable Solids	Maximum	mL per Liter	2	0.1	Numeric Effluent Violation
06/01/09	001/002	BOD5	Daily Maximum	Lbs per day	69100	49660	Numeric Effluent Violation
11/01/05	003	pH (Daily Min)	Minimum	Standard Units	5.7	6	Numeric Effluent Violation

The following table summarizes compliance with report submittal requirements over the permit term.

Table 13 Submittals

Submittal Type	Submittal Name	Permit Section	Due Date	Submittal Status	Received Date
Receiving Water Study	Receiving Water Study Plan	S10	12/01/12	Received	11/29/07
Spill Prevention Plan	Spill Prevention Plan	S8	02/29/12	Received	02/22/12
Spill Prevention Plan	Spill Prevention Plan	S8	07/30/10	Received	07/20/10
Toxicity - Acute Testing	Final/Secondary Acute Summary Report	S11.E	12/08/08	Received	12/08/08
Toxicity – Chronic	Final/Secondary Chronic	S12.E	12/08/08	Received	12/08/08

Submittal Type	Submittal Name	Permit Section	Due Date	Submittal Status	Received Date
Testing	Summary Report				
Outfall Evaluation	Outfall Evaluation	S13	12/01/08	Received	10/24/08
Application for Permit Renewal	Application for Permit Renewal	G7	12/01/08	Received	12/08/08
Mixing Study	Dilution Ratio Study	S1.B	06/01/07	Received	04/30/07
Other	Total Chlorine Free Study	S16	05/11/07	Received	05/15/07
Spill Prevention Plan	Spill Prevention Plan	S8	10/31/05	Received	10/25/05
Spill Prevention Plan	Spill Prevention Plan	S8	12/21/04	Received	12/06/04
Other	Treatment System Operation Plan	S4.A	12/31/04	Received	12/02/04
Solid Waste Control Plan	Solid Waste Control Plan	S5.C	12/31/04	Received	12/02/04
Toxicity – Acute Testing	Acute Toxicity Characterization	S11.A	12/10/04	Received	06/20/05
Toxicity – Chronic Testing	Chronic Toxicity Characterization	S12.A	12/10/04	Received	06/20/05
Toxicity – Acute Testing	Acute Toxicity Characterization	S11.A	12/10/04	Received	04/19/05
Toxicity – Chronic Testing	Chronic Toxicity Characterization	S12.A	12/10/04	Received	04/19/04
Toxicity – Acute Testing	Acute Toxicity Characterization	S11.A	12/10/04	Received	01/01/05
Toxicity – Chronic Testing	Chronic Toxicity Characterization	S12.A	12/10/04	Received	01/01/05
Toxicity – Acute Testing	Acute Toxicity Characterization	S11.A	12/10/04	Received	12/10/04
Toxicity – Chronic	Chronic Toxicity	S12.A	12/10/04	Received	12/10/04

Submittal Type	Submittal Name	Permit Section	Due Date	Submittal Status	Received Date
Testing	Characterization				
Receiving Water Study of Temperature	Temperature Study	S1.C	12/02/04	Received	12/02/04
Other	Best Management Practices Plan Certification	S9	10/01/04	Received	07/14/05

E. State Environmental Policy Act (SEPA) Compliance

State law exempts the issuance, reissuance or modification of any wastewater discharge permit from the SEPA process as long as the permit contains conditions are no less stringent than federal and state rules and regulations (RCW 43.21C.0383). The exemption applies only to existing discharges, not to new discharges. The proposed permit conditions are no less stringent than the federal and state rules and regulations; therefore, the proposed permit issuance is exempt from the SEPA process.

III. Proposed Permit Limits

Federal and state regulations require that effluent limits in an NPDES permit must be either technology- or water quality-based.

- Technology-based limits are based upon the treatment methods available to treat specific pollutants. Technology-based limits are set by the EPA and published as a regulation, or Ecology develops the limit on a case-by-case basis (40 CFR 125.3, and chapter 173-220 WAC).
- Water quality-based limits are calculated so that the effluent will comply with the Surface Water Quality Standards (chapter 173-201A WAC), Ground Water Standards (chapter 173-200 WAC), Sediment Quality Standards (chapter 173-204 WAC), or the National Toxics Rule (40 CFR 131.36).
- Ecology must apply the most stringent of these limits to each parameter of concern. These limits are described below.

The limits in this permit reflect information received in the application and from supporting reports (engineering, hydrogeology, etc.). Ecology evaluated the permit application and determined the limits needed to comply with the rules adopted by the state of Washington. Ecology does not develop effluent limits for all reported pollutants. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation.

Ecology does not usually develop limits for pollutants not reported in the permit application but may be present in the discharge. The permit does not authorize discharge of the non-reported pollutants. During the five-year permit term, the facility's effluent discharge conditions may change from those conditions reported in the permit application. The facility must notify Ecology if significant changes occur in any constituent [40 CFR 122.42(a)]. Until Ecology modifies the permit to reflect additional discharge of pollutants, a permitted facility could be violating its permit.

A. Technology-Based Effluent Limits

Ecology must ensure that facilities provide all known, available, and reasonable methods of prevention, control, and treatment (AKART) when it issues a permit.

EPA has developed effluent guidelines for the pulp and paper industry based on the pollution control practices and technologies available at the time the guidelines were established. The development of these technology-based effluent guidelines for the industry evaluated both manufacturing and waste treatment variability. The test procedures for BOD_5 and TSS also have a great deal of variability in their results when comparing different laboratories or different technicians performing the tests. To account for this variability, a statistical assessment of the performance variability for adequately designed and well operated treatment systems was utilized to yield the daily maximum allowance and the 30-day average allowance for BOD_5 and TSS for the relevant subcategories.

Therefore, in consideration of the above facts, Ecology has concluded that the proper operation and maintenance of the primary and secondary treatment design at Weyerhaeuser Longview is equivalent to AKART for conventional pollutants.

Technology-based limits for the wastewater treatment plant (Table 14) have been established using production data provided by Weyerhaeuser Longview and federal effluent guidelines.

Technology-based limits for the sanitary treatment plant (Table 15) have been established using the guidance provided in WAC 173-221-040. The weekly limit for fecal coliform at outfall 005 was replaced with a daily limit in the previous permit; the daily limit has been carried forward. The daily limit is more restrictive and consistent with the monitoring frequencies. Additional technical information regarding the calculation of the technology-based limits can be found in Appendix D.

Table 14 Technology-Based Limits Outfalls 001/002

Parameter	Average Monthly Limit	Maximum Daily Limit
Biochemical Oxygen Demand (5-day)	26,921 lbs/day	50,249 lbs/day
Total Suspended Solids (TSS)	43,599 lbs/day	83,103 lbs/day
Adsorbable Organic Halides (AOX)	1,562 lbs/day	2,385 lbs/day

Parameter	Average Monthly Limit	Maximum Daily Limit
Chloroform[a]	10.4 lbs/day	17.4 lbs/day

Parameter	Daily Minimum	Daily Maximum
pH	6.0 standard units	9.0 standard units

[a] Compliance with chloroform limits is determined at the bleach plant effluent discharge.

Table 15 Technology-based Limits Outfall 005

Parameter	Average Monthly Limit	Maximum Daily Limit
Biochemical Oxygen Demand (5-day)	30 mg/L	45 mg/L
Total Suspended Solids (TSS)	30 mg/L	45 mg/L

Parameter	Monthly Geometric Mean	Daily Maximum
Fecal Coliform	200#/100mL	400#/100mL

Parameter	Monthly Average
Removal Rate (BOD and TSS)	>85%

Parameter	Daily Minimum	Daily Maximum
pH	6.0 standard units	9.0 standard units

Bleach Plant Effluent Limits

Bleach plant effluent at the mill is combined with other mill effluent prior to treatment. To ensure accurate measurement of pollutant concentrations, the point of compliance for pollutants that are primarily generated during the bleaching process is at the bleach plant discharge. In accordance with 40 CFR 430, the Permittee must demonstrate compliance with the bleach plant effluent limits for TCDD, TCDF, 12 chlorinated phenolic pollutants, and chloroform. Effluent limits have been incorporated into the permit. The Permittee was granted *certification in lieu of monitoring for chloroform* by letter on May 2, 2006. Chloroform monitoring has been removed and parameters have been established to ensure compliance.

Performance-Based Limits

Outfalls 003 and 004 discharge to Consolidated Diking Improvement District Ditch #3 which is impaired for fecal coliform and dissolved oxygen. In accordance with Ecology's Permit Writers' Manual, to prevent further degradation of the water quality, performance-based limits were calculated. For BOD_5, dissolved oxygen, and fecal coliform, average monthly limits and maximum daily limits were established using 95 and 99 percentile data values respectively (Appendix D).

Monitoring frequencies for these performance-based limits were based on the existing minimum monitoring frequencies in the expiring permit. The monitoring frequency for BOD_5 at Outfall 003 was reduced from 5/week to weekly based on a review of the LTA-AML ratio. Ecology determined that weekly BOD_5 monitoring at Outfall 003 is a sufficient interval to yield data which reasonably characterizes the nature of the discharge.

Discharge Benchmarks

Ecology's 2012 Industrial Stormwater General Permit establishes stormwater benchmarks for all facilities requiring coverage and specifies specific benchmarks for the timber product and paper and allied product industries. In order to maintain consistency, these stormwater benchmarks were incorporated into the renewed permit for Outfalls 001/002 Ditch, Adjacent to Export Dock, Cargo Dock, Export Dock, Raw Water Ditch, and RW Office. Stormwater benchmarks are not numeric effluent limitations; they are indicator values. Although exceedance of a benchmark value is not a violation, failure to comply with prescribed actions following the exceedance of a benchmark values is a violation.

B. Surface Water Quality-Based Effluent Limits

The Washington State surface water quality standards (chapter 173-201A WAC) are designed to protect existing water quality and preserve the beneficial uses of Washington's surface waters. Waste discharge permits must include conditions that ensure the discharge will meet the surface water quality standards (WAC 173-201A-510). Water quality-based effluent limits may be based on an individual waste load allocation or on a waste load allocation developed during a basin wide total maximum daily load study (TMDL).

Numerical Criteria for the Protection of Aquatic Life and Recreation

Numerical water quality criteria are listed in the water quality standards for surface waters (chapter 173-201A WAC). They specify the maximum levels of pollutants allowed in receiving water to protect aquatic life and recreation in and on the water. Ecology uses numerical criteria along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limits, the discharge must meet the water quality-based limits.

Numerical Criteria for the Protection of Human Health

The U.S. EPA has published 91 numeric water quality criteria for the protection of human health that are applicable to dischargers in Washington State (EPA, 1992). These criteria are designed to protect humans from exposure to pollutants linked to cancer and other diseases, based on consuming fish and shellfish and drinking contaminated surface waters. The water

quality standards also include radionuclide criteria to protect humans from the effects of radioactive substances.

Narrative Criteria

Narrative water quality criteria (e.g., WAC 173-201A-240(1), 2006) limit the toxic, radioactive, or other deleterious material concentrations that the facility may discharge to levels below those which have the potential to:

- Adversely affect designated water uses.
- Cause acute or chronic toxicity to biota.
- Impair aesthetic values.
- Adversely affect human health.

Narrative criteria protect the specific designated uses of all fresh waters (WAC 173-201A-200, 2006) and of all marine waters (WAC 173-201A-210, 2006) in the state of Washington.

Antidegradation

Description--The purpose of Washington's Antidegradation Policy (WAC 173-201A-300-330, 2006) is to:

- Restore and maintain the highest possible quality of the surface waters of Washington.
- Describe situations under which water quality may be lowered from its current condition.
- Apply to human activities that are likely to have an impact on the water quality of surface water.
- Ensure that all human activities likely to contribute to a lowering of water quality, at a minimum, apply AKART.
- Apply three tiers of protection (described below) for surface waters of the state.

Tier I ensures existing and designated uses are maintained and protected and applies to all waters and all sources of pollutions. Tier II ensures that waters of a higher quality than the criteria assigned are not degraded unless such lowering of water quality is necessary and in the overriding public interest. Tier II applies only to a specific list of polluting activities. Tier III prevents the degradation of waters formally listed as "outstanding resource waters," and applies to all sources of pollution.

A facility must prepare a Tier II analysis when all three of the following conditions are met:

- The facility is planning a new or expanded action.
- Ecology regulates or authorizes the action.
- The action has the potential to cause measurable degradation to existing water quality at the edge of a chronic mixing zone.

Weyerhaeuser Longview is not a new facility but has the potential for expanded actions that would trigger a Tier II analysis. Ecology has defined expanded action as an increase (either

monthly average or annual average) to an existing permitted concentration or permitted effluent mass limit (loading) to a water body greater than 10%. The 10% increase is relative to established baselines which were in place when the Tier II guidance came into effect in 2003. Based on this guidance, Weyerhaeuser Longview has not met the requirements for a Tier II analysis since it has not experienced the above mentioned 10% increase.

Facility Specific Requirements--This facility must meet Tier I requirements.

- Dischargers must maintain and protect existing and designated uses. Ecology must not allow any degradation that will interfere with, or become injurious to, existing or designated uses, except as provided for in chapter 173-201A WAC.
- For waters that do not meet assigned criteria, or protect existing or designated uses, Ecology will take appropriate and definitive steps to bring the water quality back into compliance with the water quality standards.
- Whenever the natural conditions of a water body are of a lower quality than the assigned criteria, the natural conditions constitute the water quality criteria. Where water quality criteria are not met because of natural conditions, human actions are not allowed to further lower the water quality, except where explicitly allowed in chapter 173-201A WAC.

Ecology's analysis described in this section of the fact sheet demonstrates that the proposed permit conditions will protect existing and designated uses of the receiving water.

Mixing Zones

A mixing zone is the defined area in the receiving water surrounding the discharge port(s), where wastewater mixes with receiving water. Within mixing zones the pollutant concentrations may exceed water quality numeric standards, so long as the discharge doesn't interfere with designated uses of the receiving water body (for example, recreation, water supply, and aquatic life and wildlife habitat, etc.) The pollutant concentrations outside of the mixing zones must meet water quality numeric standards.

State and federal rules allow mixing zones because the concentrations and effects of most pollutants diminish rapidly after discharge, due to dilution. Ecology defines mixing zone sizes to limit the amount of time any exposure to the end-of-pipe discharge could harm water quality, plants, or fish.

The state's water quality standards allow Ecology to authorize mixing zones for the facility's permitted wastewater discharges only if those discharges already receive AKART. Mixing zones typically require compliance with water quality criteria within a specified distance from the point of discharge and must not use more than 25% of the available width of the water body for dilution [WAC 173-201A-400 (7)(a)(ii-iii)].

Ecology uses modeling to estimate the amount of mixing within the mixing zone. Through modeling Ecology determines the potential for violating the water quality standards at the edge of the mixing zone and derives any necessary effluent limits. Steady-state models are the most frequently used tools for conducting mixing zone analyses. Ecology chooses values for each effluent and for receiving water variables that correspond to the time period when the most critical condition is likely to occur (see Ecology's *Permit Writer's Manual*). Each

critical condition parameter, by itself, has a low probability of occurrence and the resulting dilution factor is conservative. The term "reasonable worst-case" applies to these values.

The mixing zone analysis produces a numerical value called a dilution factor (DF). A dilution factor represents the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. For example, a dilution factor of 20 means the effluent is 5% and the receiving water is 95% of the total volume of water at the boundary of the mixing zone. Ecology uses dilution factors with the water quality criteria to calculate reasonable potentials and effluent limits. Water quality standards include both aquatic life-based criteria and human health-based criteria. The former are applied at both the acute and chronic mixing zone boundaries; the latter are applied only at the chronic boundary. The concentration of pollutants at the boundaries of any of these mixing zones may not exceed the numerical criteria for that zone.

Each aquatic life *acute* criterion is based on the assumption that organisms are not exposed to that concentration for more than one hour and more often than one exposure in three years. Each aquatic life *chronic* criterion is based on the assumption that organisms are not exposed to that concentration for more than four consecutive days and more often than once in three years.

The two types of human health-based water quality criteria distinguish between those pollutants linked to non-cancer effects (non-carcinogenic) and those linked to cancer effects (carcinogenic). The human health-based water quality criteria incorporate several exposure and risk assumptions. These assumptions include:

- A 70-year lifetime of daily exposures.
- An ingestion rate for fish or shellfish measured in kg/day.
- An ingestion rate of two liters/day for drinking water.
- A one-in-one-million cancer risk for carcinogenic chemicals.

This permit authorizes a small acute mixing zone, surrounded by a chronic mixing zone around the point of discharge (WAC 173-201A-400). The water quality standards impose certain conditions before allowing the discharger a mixing zone:

1. Ecology must specify both the allowed size and location in a permit.

The proposed permit specifies the size and location of the allowed mixing zone (as specified below).

2. The facility must fully apply AKART to its discharge.

Ecology has determined that the treatment provided at Weyerhaeuser Longview meets the requirements of AKART (see "Technology-based Limits").

3. Ecology must consider critical discharge conditions.

Surface water quality-based limits are derived for the water body's critical condition (the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or designated waterbody uses). The critical discharge condition is often pollutant-specific or waterbody-specific.

Critical discharge conditions are those conditions that result in reduced dilution or increased effect of the pollutant. Factors affecting dilution include the depth of water, the density stratification in the water column, the currents, and the rate of discharge. Density stratification is determined by the salinity and temperature of the receiving water. Temperatures are warmer in the surface waters in summer. Therefore, density stratification is generally greatest during the summer months. Density stratification affects how far up in the water column a freshwater plume may rise. The rate of mixing is greatest when an effluent is rising. The effluent stops rising when the mixed effluent is the same density as the surrounding water. After the effluent stops rising, the rate of mixing is much more gradual. Water depth can affect dilution when a plume might rise to the surface when there is little or no stratification. Ecology's *Permit Writer's Manual* describes additional guidance on criteria/design conditions for determining dilution factors. The manual can be obtained from Ecology's website at: https://fortress.wa.gov/ecy/publications/SummaryPages/92109.html.

In Weyerhaeuser Longview's *Outfall Dilution and Temperature Study* dated January 20, 2004, the dilution and mixing zone analysis was performed on a variety of discharge and environmental conditions. The modeling conditions that produced the lowest predicted dilutions were identified as the site-specific critical conditions (Table 20).

4. Supporting information must clearly indicate the mixing zone would not:

- Have a reasonable potential to cause the loss of sensitive or important habitat.
- Substantially interfere with the existing or characteristic uses.
- Result in damage to the ecosystem.
- Adversely affect public health.

Ecology established Washington State water quality criteria for toxic chemicals using EPA criteria. EPA developed the criteria using toxicity tests with numerous organisms and set the criteria to generally protect the species tested and to fully protect all commercially and recreationally important species.

EPA sets acute criteria for toxic chemicals assuming organisms are exposed to the pollutant at the criteria concentration for one hour. They set chronic standards assuming organisms are exposed to the pollutant at the criteria concentration for four days. Dilution modeling under critical conditions generally shows that both acute and chronic criteria concentrations are reached within minutes of discharge.

The discharge plume does not impact drifting and non-strong swimming organisms because they cannot stay in the plume close to the outfall long enough to be affected. Strong swimming fish could maintain a position within the plume, but they can also avoid the discharge by swimming away. Mixing zones generally do not affect benthic organisms (bottom dwellers) because the buoyant plume rises in the water column. Ecology has additionally determined that the effluent will not exceed 33 degrees C for more than two seconds after discharge; and that the temperature of the water will not create lethal conditions or blockages to fish migration.

Ecology evaluates the cumulative toxicity of an effluent by testing the discharge with whole effluent toxicity (WET) testing.

Ecology reviewed the above information, the specific information on the characteristics of the discharge, the receiving water characteristics and the discharge location. Based on this review, Ecology concluded that the discharge does not have a reasonable potential to cause the loss of sensitive or important habitat, substantially interfere with existing or characteristics uses, result in damage to the ecosystem, or adversely affect public health if the permit limits are met.

5. The discharge/receiving water mixture must not exceed water quality criteria outside the boundary of a mixing zone.

Ecology conducted a reasonable potential analysis; using procedures established by the EPA and by Ecology, for each pollutant and concluded the discharge/receiving water mixture will not violate water quality criteria outside the boundary of the mixing zone if permit limits are met.

6. The size of the mixing zone and the concentrations of the pollutants must be minimized.

At any given time, the effluent plume uses only a portion of the acute and chronic mixing zone, which minimizes the volume of water involved in mixing. Because tidal currents change direction, the plume orientation within the mixing zone changes. The plume mixes as it rises through the water column therefore much of the receiving water volume at lower depths in the mixing zone is not mixed with discharge. Similarly, because the discharge may stop rising at some depth due to density stratification, waters above that depth will not mix with the discharge. Ecology determined it is impractical to specify in the permit the actual, much more limited volume in which the dilution occurs as the plume rises and moves with the current.

Ecology minimizes the size of mixing zones by requiring dischargers to install diffusers when they are appropriate to the discharge and the specific receiving waterbody. When a diffuser is installed, the discharge is more completely mixed with the receiving water in a shorter time. Ecology also minimizes the size of the mixing zone (in the form of the dilution factor) using design criteria with a low probability of occurrence. For example, Ecology uses the expected 95th percentile pollutant concentration, the 90th percentile background concentration, the centerline dilution factor, and the lowest flow occurring once in every ten years to perform the reasonable potential analysis.

Because of the above reasons, Ecology has effectively minimized the size of the mixing zone authorized in the proposed permit.

7. Maximum size of mixing zone.

The authorized mixing zone does not exceed the maximum size restriction.

8. Acute mixing zone.

- **The discharge/receiving water mixture must comply with acute criteria as near to the point of discharge as practicably attainable.**

Ecology determined the acute criteria will be met at 10% of the distance of the chronic mixing zone at the ten year low flow.

- **The pollutant concentration, duration, and frequency of exposure to the discharge will not create a barrier to migration or translocation of indigenous organisms to a degree that has the potential to cause damage to the ecosystem.**

As described above, the toxicity of any pollutant depends upon the exposure, the pollutant concentration, and the time the organism is exposed to that concentration. Authorizing a limited acute mixing zone for this discharge assures that it will not create a barrier to migration. The effluent from this discharge will rise as it enters the receiving water, assuring that the rising effluent will not cause translocation of indigenous organisms near the point of discharge (below the rising effluent).

- **Comply with size restrictions.**

The mixing zone authorized for this discharge complies with the size restrictions published in chapter 173-201A WAC.

9. Overlap of Mixing Zones.

Outfalls 001 and 002 run parallel to each other as they extend into the Columbia River and have overlapping chronic mixing zones. Due to the authorized dilution ratio of the east and west diffusers, Ecology has determined the combined effect of the diffusers will not cause an exceedance of the water quality standards.

C. Designated Uses and Surface Water Quality Criteria

Applicable designated uses and surface water quality criteria are defined in chapter 173-201A WAC. In addition, the U.S. EPA set human health criteria for toxic pollutants (EPA 1992). The table included below summarizes the criteria applicable to this facility's discharge.

- Aquatic Life Uses are designated based on the presence of, or the intent to provide protection for the key uses. All indigenous fish and non-fish aquatic species must be protected in waters of the state in addition to the key species. The Aquatic Life Uses for this receiving water are identified below.

Table 16 Freshwater Aquatic Life Uses and Associated Criteria

Salmonid Spawning, Rearing, and Migration	
Temperature Criteria – Highest 1-DAD MAX	• 1-day maximum (1-DMax) of 20.0 °C • When natural conditions exceed 1-DMax, no temperature increase will raise the receiving water temperature by greater than 0.3 °C
Dissolved Oxygen Criteria – Lowest 1-Day Minimum	To exceed 90 percent saturation
Turbidity Criteria	• 5 NTU over background when the background is 50 NTU or less; or • A 10 percent increase in turbidity when the background turbidity is more than 50 NTU.

Salmonid Spawning, Rearing, and Migration	
Total Dissolved Gas Criteria	Total dissolved gas must not exceed 110 percent of saturation at any point of sample collection.
pH Criteria	The pH must measure within the range of 6.5 to 8.5 with a human-caused variation within the above range of less than 0.5 units.

- The *recreational uses* for this receiving water are identified below.

Table 17 Recreational Uses and Associated Criteria

Recreational Use	Criteria
Primary Contact Recreation	Fecal coliform organism levels must not exceed a geometric mean value of 100 colonies /100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 200 colonies /100 mL.

- The *water supply uses* are domestic, agricultural, industrial, and stock watering.
- The *miscellaneous freshwater uses* are wildlife habitat, harvesting, commerce and navigation, boating, and aesthetics.

D. Water Quality Impairments

Total maximum daily loads (TMDLs) have been established for the Columbia River for dioxins and total dissolved gas (TDG).

On February 25, 1991, the Environment Protection Agency (EPA) established a TMDL to limit discharges of dioxins to the Columbia River Basin (*TMDL Document for Columbia River – Dioxin* dated February 25, 1991). The pollutant 2,3,7,8-TCDD is the most toxic of all the dioxins and therefore the TMDL was based on data describing concentration of 2,3,7,8-TCDD. To meet the water quality standard, EPA allocated Weyerhaeuser Longview a waste load allocation (WLA) of 0.26 mg of 2,3,7,8-TCDD per day. Using the guidance provided by EPA's *Technical Support Document for Water Quality-based Toxics Control* (EPA 505/2-90-001), Ecology established the maximum daily limit (MDL) for 2,3,7,8-TCDD by setting the average monthly limit (AML) equal to the WLA. The MDL was then calculated using a factor from Table 5-3 of the above referenced EPA document. The calculated MDL was not consistent with the 2,3,7,8-TCDD limit in the previous permit; the limit has been updated. Technical calculations can be found in Appendix D.

On November 18, 2002, the EPA established a TMDL to limit discharges of TDG (*TMDL Document for Columbia River - Total Dissolved Gas* dated September 2002). Elevated TDG levels are caused by four hydroelectric dams along the lower Columbia River. Water spilling from the dams entrains air causing the supersaturation of water with dissolved gases. Weyerhaeuser Longview is not a source of TDG therefore Ecology did not propose a limit for TDG in this permit.

Ecology has documented temperature impairment in the receiving water in the vicinity of the outfall. Ecology considers the entire Columbia River impaired for temperature. EPA has prepared a draft TMDL for temperature however has delayed issuance pending discussion and information exchanges.

The Consolidated Diking Improvement District Ditch #3(CDID Ditch #3), which Weyerhaeuser Longview discharges to through Outfalls 003, 004, and RW Office, is listed on the current 303(d) and is impaired for dissolved oxygen. Performance based limits have been established to prevent further degradation of the surface water. Discussion of stormwater limits is included in Section I.

E. Evaluation of Surface Water Quality-Based Effluent Limits for Numeric Criteria

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near-field) or at a considerable distance from the point of discharge (far-field). Toxic pollutants, for example, are near-field pollutants; their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as biological oxygen demand (BOD) is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating surface water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

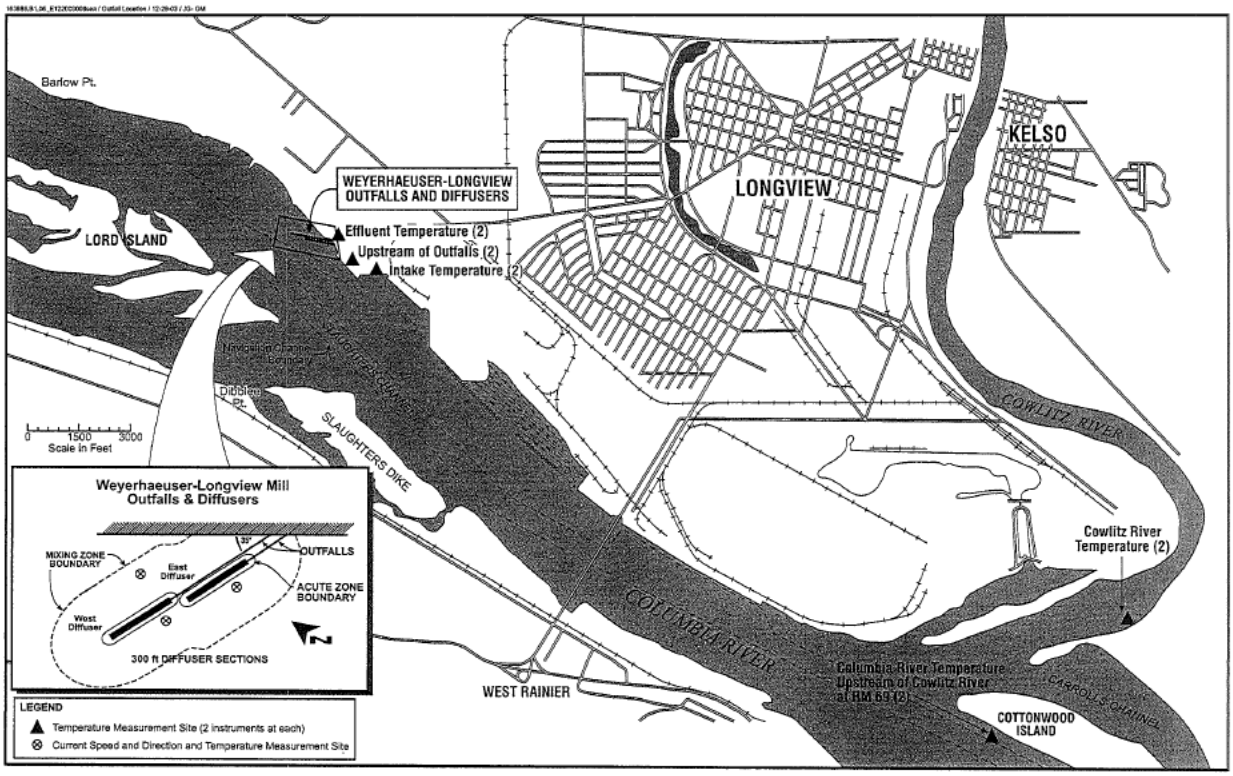
With technology-based controls (AKART), predicted pollutant concentrations in the discharge exceed water quality criteria. Ecology therefore authorizes a mixing zone in accordance with the geometric configuration, flow restriction, and other restrictions imposed on mixing zones by chapter 173-201A WAC.

The diffuser at Outfall 001 is 320 feet long with a diameter of 54 inches. The diffuser has a total of 12 14-inch diameter ports. The first two ports are spaced 27 feet apart. Ports two through ten are spaced 32 feet apart. Ports eleven and twelve are spaced 17.5 feet apart. The average depth of discharge from the diffuser ports ranges from 28 feet below Columbia River Datum (CRD) at low river flow and ebb tide to 43 feet CRD at high river flow and flood tide.

The diffuser at Outfall 002 is 300 feet long with a diameter of 48 inches. The diffuser has a total of 36 8-inch diameter ports. The ports are spaced 8-foot 4-inch on center. The average depth of discharge from the diffuser ports ranges from 21 feet below CRD at low river flow and ebb tide to 36 feet CRD at high river flow and flood tide.

Ecology obtained this information from CH2M Hill's *Outfall Dilution and Temperature Study* submitted on January 20, 2004.

Figure 4 Outfalls 001/002 Diagram and Map



Chronic Mixing Zone--WAC 173-201A-400(7)(b) specifies that mixing zones must not extend in any horizontal direction from the discharge ports for a distance greater than 200 feet plus the depth of water over the discharge ports and may not occupy more than 25% of the width of the water body as measured during MLLW.

Outfall 001 (east diffuser): The horizontal distance of the chronic mixing zone is 228 feet. The mixing zone extends from the top of the discharge ports to the water surface.

Outfall 002 (west diffuser): The horizontal distance of the chronic mixing zone is 221 feet. The mixing zone extends from the top of the discharge ports to the water surface.

Acute Mixing Zone--WAC 173-201A-400(8)(b) specifies that in estuarine waters a zone where acute criteria may be exceeded must not extend beyond 10% of the distance established for the chronic zone.

Outfall 001 (east diffuser): The acute mixing zone for Outfall 001 extends 22.8 feet in any direction from any discharge port.

Outfall 002 (west diffuser): The acute mixing zone for Outfall 002 extends 22.1 feet in any direction from any discharge port.

Ecology determined the dilution factors that occur within these zones at the critical condition using CH2M Hill's *Outfall Dilution and Temperature Study* dated January 20, 2004. UDKHDEN, a three-dimensional hydrodynamic model, was selected to characterize near-

field dilution in the study. Far-field dilution was modeled using the Brooks' method. Forty-eight combinations of parameters such as effluent flow rates and temperatures, receiving water temperatures, current speeds, discharge depth, and tidal effects were evaluated to determine dilution under critical (worst-case) conditions. The worst-case dilution factors are listed below.

Table 18 Dilution Factors (DF) Outfall 001 – East Diffuser

Criteria	Acute	Chronic
Aquatic Life	16.7	110.8
Human Health, Carcinogen		110.8
Human Health, Non-carcinogen		110.8

Table 19 Dilution Factors (DF) Outfall 002 – West Diffuser

Criteria	Acute	Chronic
Aquatic Life	29.1	103.0
Human Health, Carcinogen		103.0
Human Health, Non-carcinogen		103.0

Ecology determined the impacts of dissolved oxygen deficiency, pH, fecal coliform, turbidity, chlorine, ammonia, metals, other toxics, and temperature as described below, by using the dilution factors in the above table and by reviewing CH2M Hill's *Outfall Dilution and Temperature Study* dated January 20, 2004. The derivation of surface water quality-based limits also takes into account the variability of pollutant concentrations in both the effluent and the receiving water.

BOD5--With technology-based limits, this discharge from Outfalls 001, 002, and 005 result in a small amount of BOD_5 loading relative to the large amount of dilution in the receiving water at critical conditions. Technology-based limits will ensure that dissolved oxygen criteria are met in the receiving water.

pH--Ecology modeled the impact of the effluent pH on the receiving water using the calculations from EPA, 1988, and the chronic dilution factor tabulated above.

Ecology predicts no violation of the pH criteria under critical conditions. Therefore, the proposed permit includes technology-based effluent limits for pH.

Fecal Coliform--Weyerhaeuser Longview has demonstrated it can reliably meet the water quality standard for fecal coliform for primary contact recreation in the discharge of Outfall 005. Measured effluent concentrations from Outfall 005 are consistently below the reporting level of 2 organisms per 100 ml. At these concentrations, there is no reasonable potential to cause, or contribute to an excursion above any state water quality standard.

Turbidity--Ecology evaluated the impact of turbidity based on the turbidity data from Outfall 001, Outfall 002, and the receiving water. Turbidity may be exceeded during filter plant backwash and/or filter plant sedimentation basin wash outs. Section V.I seeks to address this with a *Water Supply Plant Discharge AKART study*.

No violations of the turbidity criteria are expected from Outfall 005 based on low effluent volume and total suspended solid (TSS) loading.

The proposed permit includes the technology-based limits for TSS at Outfalls 001, 002, and 005.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require Ecology to place limits in NPDES permits on toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. Ecology does not exempt facilities with technology-based effluent limits from meeting the surface water quality standards.

The following toxic pollutants are present in the discharge:

- Ammonia
- Chlorine
- Aluminum
- Arsenic
- Cadmium
- Chromium
- Copper
- Lead
- Mercury
- Nickel
- Selenium
- Silver
- Zinc

Ecology reviewed CH2M Hill's *Outfall Dilution and Temperature Study* dated January 20, 2004 which contains a reasonable potential analysis for ammonia (un-ionized NH3), total residual chlorine, arsenic, cadmium, total chromium, copper, lead, mercury, nickel, selenium, silver, and zinc. Ecology performed an additional reasonable potential analysis on aluminum (Appendix D).

For metals and chlorinated phenols in the effluent, the study used data collected by Weyerhaeuser Longview from April 1990 through December 1993. For ammonia and total residual chlorine in the effluent, the study used data collected by Weyerhaeuser Longview from April 1993 through March 1994.

Ammonia's toxicity depends on that portion which is available in the unionized form. The amount of unionized ammonia depends on the temperature and pH in the receiving freshwater. To evaluate ammonia toxicity in the *Outfall Dilution and Temperature Study*,

CH2M Hill used the available receiving water information from Tetra Tech's *Bi-State Program for the Lower Columbia River Reconnaissance Survey*. Un-ionized ammonia concentrations were calculated for both dry and wet seasons to fully capture the range of receiving water conditions.

Valid ambient background data were available for ammonia, chlorine, aluminum, arsenic, cadmium, chromium, copper, iron, lead, mercury, nickel, selenium, silver, and zinc. For the CH2M Hill study, concentrations of toxic pollutants in the receiving water were obtained from the Tetra Tech's *Bi-State Program for the Lower Columbia River Reconnaissance Survey* and 1990 Ecology data from Warrendale, Oregon (Johnson and Hopkins, 1991). For Ecology's reasonable potential analysis, concentrations of toxic pollutants in the receiving water were obtained from USGS *Water-Data Reports*. CH2M Hill and Ecology used all applicable data to evaluate reasonable potential for this discharge to cause a violation of water quality standards.

Ecology determined that ammonia, chlorine, aluminum, arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, and zinc pose no reasonable potential to exceed the water quality criteria at the critical condition using procedures given in EPA, 1991. The effluent concentrations of toxic pollutants that were used in the reasonable potential analysis of the study were significantly higher than the effluent concentrations of toxic pollutants reported in Weyerhaeuser Longview's permit renewal application. The reasonable potential analysis in the study is therefore more conservative and the results are applicable to the current effluent discharge. The results for the reasonable potential analysis are tabulated below. Ecology's determination assumes that this facility meets the other effluent limits of this permit.

Table 20 Toxic Pollutant Reasonable Potential Analysis

Parameter	Water Quality Standard		Max Effluent Conc. (µg/L)	Average Effluent Conc. (µg/L)	Ambient Conc. (90^{th} percentile est.) (µg/L)	Min. Dilution to Meet WQ Standards at Acute Boundary	Min. Dilution to Meet WQ Standards at Mixing Zone Boundary
	Acute (µg/L)	Chronic (µg/L)					
Ammonia (un-ionized NH3) – dry season	213.7	29.1	234	138.6	20	1	9
Ammonia (un-ionized NH3) – wet season	123.8	23.8	144.0	85.2	10	1	6
Chlorine (Total Residual) – dry season	19.0	11.0	320.0	256.0	--	17	29

Parameter	Water Quality Standard		Max Effluent Conc. (µg/L)	Average Effluent Conc. (µg/L)	Ambient Conc. (90th percentile est.) (µg/L)	Min. Dilution to Meet WQ Standards at Acute Boundary	Min. Dilution to Meet WQ Standards at Mixing Zone Boundary
	Acute (µg/L)	Chronic (µg/L)					
Chlorine (Total Residual) – wet season	19.0	11.0	110.0	93.0	--	6	10
Arsenic	360.0	190.0	50.0	45.8	2.5	0	1
Cadmium	1.8	0.6	5.0	2.5	0.064	6	18
Chromium (total)	3110	101	89.0	31.1	2.5	0	2
Copper	8.9	6.3	19.0	11.3	2.82	5	6
Lead	30.1	1.2	25.0	12.5	0.56	2	44
Mercury	2.1	0.012	--	--	0.0012	0	0
Nickel	787.0	87.5	15.0	15.0	20	0	1
Selenium	20.0	5.0	250.0	141.7	2.5	--	--
Silver	1.05	--	5.0	2.5	1	11	--
Zinc	63.6	58.1	130.0	82.0	1.26	4	4

Temperature--The state temperature standards (WAC 173-201A-200-210 and 600-612) include multiple elements:

- Annual summer maximum threshold criteria (June 15 to September 15)
- Supplemental spawning and rearing season criteria (September 15 to June 15)
- Incremental warming restrictions
- Protections against acute effects

Ecology evaluates each criterion independently to determine reasonable potential and derive permit limits.

- Annual summer maximum and supplementary spawning/rearing criteria

Each water body has an annual maximum temperature criterion [WAC 173-201A-200(1)(c), 210(1)(c), and Table 602]. These threshold criteria (e.g., 12, 16, 17.5, 20°C) protect specific categories of aquatic life by controlling the effect of human actions on summer temperatures.

Some waters have an additional threshold criterion to protect the spawning and incubation of salmonids (9°C for char and 13°C for salmon and trout) [WAC 173-201A-602, Table 602]. These criteria apply during specific date-windows.

The threshold criteria apply at the edge of the chronic mixing zone. Criteria for most fresh waters are expressed as the highest 7-Day average of daily maximum temperature (7-DADMax). The 7-DADMax temperature is the arithmetic average of seven consecutive measures of daily maximum temperatures. Criteria for marine waters and some fresh waters are expressed as the highest 1-Day annual maximum temperature (1-DMax).

- Incremental warming criteria

The water quality standards limit the amount of warming human sources can cause under specific situations [WAC 173-201A-200(1)(c)(i)-(ii), 210(1)(c)(i)-(ii)]. The incremental warming criteria apply at the edge of the chronic mixing zone.

At locations and times when background temperatures are cooler than the assigned threshold criterion, point sources are permitted to warm the water by only a defined increment.

At locations and times when a threshold criterion is being exceeded due to natural conditions, all human sources, considered cumulatively, must not warm the water more than 0.3°C above the naturally warm condition.

When Ecology or EPA has not yet completed a TMDL, our policy allows each point source to warm water at the edge of the chronic mixing zone by 0.3°C. This is true regardless of the background temperature and even if doing so would cause the temperature at the edge of a standard mixing zone to exceed the numeric threshold criteria. Allowing a 0.3°C warming for each point source is reasonable and protective where the dilution factor is based on 25% or less of the critical flow. This is because the fully mixed effect on temperature will only be a fraction of the 0.3°C cumulative allowance (0.075°C or less) for all human sources combined.

- Protections for temperature acute effects

Instantaneous lethality to passing fish: The upper 99th percentile daily maximum effluent temperature must not exceed 33°C, unless a dilution analysis indicates ambient temperatures will not exceed 33°C two seconds after discharge.

General lethality and migration blockage: Measurable (0.3°C) increases in temperature at the edge of a chronic mixing zone are not allowed when the receiving water temperature exceeds either a 1DMax of 23°C or a 7DADMax of 22°C.

Lethality to incubating fish: Human actions must not cause a measurable (0.3°C) warming above 17.5°C at locations where eggs are incubating.

Reasonable Potential Analysis

Ecology determined whether Weyerhaeuser Longview had reasonable potential to exceed the temperature criterion by using CH2M Hill's *Outfall Dilution and Temperature Study* dated January 20, 2004.

"Using the model-predicted average dilutions that UDKHDEN provides, the model results can be used to determine the effects that effluent temperature has on ambient temperature. UDKHDEN does a good job of predicting effluent cooling behavior in receiving water

bodies when compared to data from both field and laboratory studies, since UDKHDEN was originally designed to model the behavior of thermal discharges (L. Davis, personal communication)."

Annual Summer Maximum and Incremental Warming Criteria: Ecology reviewed the reasonable potential analysis performed by CH2M Hill for the discharge to exceed the annual summer maximum, and the incremental warming criteria (See Table 21).

The discharge is only allowed to warm the water by a defined increment when the background (ambient) temperature is cooler or warmer than the assigned threshold criterion. Ecology allows warming increments only when they do not cause temperatures to exceed either the annual maximum or supplemental spawning criteria.

The incremental increase for this discharge is within the allowable amount. Therefore, the proposed permit does not include a temperature limit.

Instantaneous Lethality to Passing Fish: Near-field dilution analysis demonstrates that the plume temperature is less than 33°C two seconds after discharge. CH2M Hill modeled the plume temperature two seconds after discharge (See Table 21). The results demonstrate there is no reasonable potential for instantaneous lethality to passing fish.

Table 21 Summary of Temperature Effects and Dilution

Outfall Diffuser	UDKHDEN Model Case No.	Effluent Temp. (°C)	Ambient River Temp. (°C)	Plume Temp. After 2 Seconds (°C)	Temp. at Mixing Zone Boundary (°C)	ΔT at Mixing Zone Boundary (°C)
East (001)	17	37.7	20.96	27.2	21.0	0.1
	18	38.8	20.96	27.6	21.0	0.1
	19	37.7	20.96	27.9	21.1	0.1
	20	38.8	20.96	28.5	21.1	0.1
	21	34.3	7.3	17.4	7.5	0.2
	22	36.3	7.3	18.1	7.6	0.3
	23	34.3	7.3	18.2	7.5	0.2
	24	36.3	7.3	19.0	7.5	0.2
West (002)	41	36.9	20.96	23.4	21.1	0.1
	42	38.4	20.96	23.7	21.1	0.1
	43	36.9	20.96	24.6	21.1	0.2

Outfall Diffuser	UDKHDEN Model Case No.	Effluent Temp. (°C)	Ambient River Temp. (°C)	Plume Temp. After 2 Seconds (°C)	Temp. at Mixing Zone Boundary (°C)	ΔT at Mixing Zone Boundary (°C)
	44	38.4	20.96	25.1	21.1	0.2
	45	34.3	7.3	13.1	7.5	0.2
	46	35.4	7.3	13.3	7.5	0.2
	47	34.3	7.3	15.1	7.4	0.1
	48	35.4	7.3	15.4	7.5	0.2

F. Human Health

Washington's water quality standards include 91 numeric human health-based criteria that Ecology must consider when writing NPDES permits. These criteria were established in 1992 by the U.S. EPA in its National Toxics Rule (40 CFR 131.36). The National Toxics Rule allows states to use mixing zones to evaluate whether discharges comply with human health criteria. Ecology determined the effluent may contain chemicals of concern for human health, based data or information indicating the discharge contains regulated chemicals.

Ecology evaluated the discharge's potential to violate the water quality standards as required by 40 CFR 122.44(d) by following the procedures published in the *Technical Support Document for Water Quality-Based Toxics Control* (EPA/505/2-90-001) and Ecology's *Permit Writer's Manual* to make a reasonable potential determination. The evaluation showed that the discharge has no reasonable potential to cause a violation of water quality standards, and an effluent limit is not needed (Appendix D).

Arsenic - In 1992 the USEPA adopted risk-based arsenic criteria for the protection of human health for the State of Washington. The freshwater criterion is 0.018 µg/L, and is based on exposure from fish and shellfish tissue and water ingestion. The criteria has caused confusion in implementation because they differ from the drinking water maximum contaminant level (MCL) of 10 µg/L, which is not risk-based, and because the human health criteria is sometimes exceeded by natural background concentrations of arsenic in surface water and groundwater.

In Washington, when a natural background concentration exceeds the criterion, the natural background concentration becomes the criterion, and no dilution is allowed. This could result in a situation where natural groundwater or surface water used as a municipal or industrial source-water would need additional treatment to meet numeric effluent limits even though no arsenic was added as waste. Although this is not the case for all discharges, we do not have data at this time to quantify the extent of the problem.

A regulatory mechanism to deal with the issues associated with natural background concentrations of arsenic in groundwater-derived drinking waters is currently lacking. Consequently, the Water Quality Program, at this time, has decided to use a three-pronged strategy to address the issues associated with the arsenic criteria. The three strategy elements are:

1. Pursue, at the national level, a solution to the regulatory issue of groundwater sources with high arsenic concentrations causing municipal treatment plant effluent to exceed criteria. The revision of the drinking water MCL for arsenic offered a national opportunity to discuss how drinking water sources can affect NPDES wastewater dischargers, however Ecology was unsuccessful in focusing the discussion on developing a national policy for arsenic regulation that acknowledges the risks and costs associated with management of the public exposure to natural background concentrations of arsenic through water sources. The current arsenic MCL of 10 µg/L could also result in municipal treatment plants being unable to meet criteria-based effluent limits. Ecology will continue to pursue this issue as opportunities arise.

2. Additional and more focused data collection. The Water Quality Program will in some cases require additional and more focused arsenic data collection, will encourage or require dischargers to test for source water arsenic concentrations, and will pursue development of a proposal to have Ecology's Environmental Assessment Program conduct drinking water source monitoring as well as some additional ambient monitoring data. At this time, Washington NPDES permits will contain numeric effluent limits for arsenic based only on treatment technology and aquatic life protection as appropriate.

3. Data sharing. Ecology will share data with USEPA as they work to develop new risk-based criteria for arsenic and as they develop a strategy to regulate arsenic.

Chloroform – A reasonable potential analysis was performed to assess the risk to human health from chloroform contained in the effluent. No reasonable potential to exceed the human health criteria was found. The analysis has been tabulated in Appendix D.

G. Sediment Quality

The aquatic sediment standards (chapter 173-204 WAC) protect aquatic biota and human health. Under these standards Ecology may require a facility to evaluate the potential for its discharge to cause a violation of sediment standards (WAC 173-204-400). You can obtain additional information about sediments at the Aquatic Lands Cleanup Unit website. http://www.ecy.wa.gov/programs/tcp/smu/sediment.html

Weyerhaeuser Longview submitted a sediment study was submitted on January 30, 1992. The proposed permit requires the Permittee to conduct a study to re-characterize sediment during this permit cycle (Special Condition S14).

H. Groundwater Quality Limits

The groundwater quality standards (chapter 173-200 WAC) protect beneficial uses of groundwater. Permits issued by Ecology must not allow violations of those standards (WAC 173-200-100).

Weyerhaeuser Longview does not discharge wastewater to the ground. No permit limits are required to protect groundwater.

I. Whole Effluent Toxicity

The water quality standards for surface waters forbid discharge of effluent that has the potential to cause toxic effects in the receiving waters. Many toxic pollutants cannot be measured by commonly available detection methods. However, laboratory tests can measure toxicity directly by exposing living organisms to the wastewater and measuring their responses. These tests measure the aggregate toxicity of the whole effluent, so this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

- *Acute toxicity tests measure mortality as the significant response* to the toxicity of the effluent. Dischargers who monitor their wastewater with acute toxicity tests find early indications of any potential lethal effect of the effluent on organisms in the receiving water.
- *Chronic toxicity tests measure various sublethal toxic responses*, such as reduced growth or reproduction. Chronic toxicity tests often involve either a complete life cycle test on an organism with an extremely short life cycle, or a partial life cycle test during a critical stage of a test organism's life. Some chronic toxicity tests also measure organism survival.

Laboratories accredited by Ecology for WET testing know how to use the proper WET testing protocols, fulfill the data requirements, and submit results in the correct reporting format. Accredited laboratory staff know about WET testing and how to calculate an No Observed Effect Concentration (NOEC), Lethal Concentration, 50% (LC50), Effective Concentration, 50% (EC50), Inhibition Concentration, 25% (IC25), etc. Ecology gives all accredited labs the most recent version of Ecology Publication No. WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* (https://fortress.wa.gov/ecy/publications/SummaryPages/9580.html), which is referenced in the permit. Ecology recommends that Weyerhaeuser Longview send a copy of the acute or chronic toxicity sections(s) of its NPDES permit to the laboratory.

In accordance with regulations for acute toxicity testing, if the median survival of the test organisms is less than eighty percent, or any individual test result shows less than a sixty-five percent survival in one hundred percent effluent, then acute WET limits are required. For chronic toxicity testing, if any test demonstrates a statistically significant difference in response between the acute critical effluent concentration (ACEC) and the control, then chronic WET limits are required.

WET testing conducted during effluent characterization showed no reasonable potential for effluent discharges to cause receiving water acute or chronic toxicity. The most recent WET test results from September 2008 have been included in Table 21 and 22. The proposed permit will not include an acute WET limit. Weyerhaeuser Longview must retest the effluent before submitting an application for permit renewal.

- If this facility makes process or material changes which, in Ecology's opinion, increase the potential for effluent toxicity, then Ecology may (in a regulatory order, by permit modification, or in the permit renewal) require the facility to conduct additional effluent characterization. Weyerhaeuser Longview may demonstrate to Ecology that effluent toxicity has not increased by performing additional WET testing and/or chemical

analyses after the process or material changes have been made. Ecology recommends that the Permittee check with it first to make sure that Ecology will consider the demonstration adequate to support a decision to not require an additional effluent characterization.

- If WET testing conducted for submittal with a permit application fails to meet the performance standards in WAC 173-205-020, Ecology will assume that effluent toxicity has increased.

Table 22 Acute Toxicity Test Result in 100% Effluent

Species	Percent Survival	NOEC[a]	LC50[b]
Daphnia magna	100	100	>100
Fathead minnows	100	100	>100

[a] No observed effect concentration (NOEC) is the highest concentration of effluent in a toxicity test shown to have no statistically significant adverse effect when compared to an appropriate control.

[b] Lethal concentration, 50% (LC50) is the effluent concentration estimated to cause death in fifty percent of the test organisms in a toxicity test.

Table 23 Chronic Toxicity Test Results

Species	End Point	NOEC[a]	LOEC[b]
Ceriodaphina	Survival	100	>100
	Reproduction	100	>100
Fathead minnows	Survival	100	>100
	Growth	10	>100

[a] No observed effect concentration (NOEC) is the highest concentration of effluent in a toxicity test shown to have no statistically significant adverse effect when compared to an appropriate control.

[b] Lowest observed effect concentration (LOEC) is the lowest concentration of effluent in a toxicity test shown to an observed adverse effect.

J. Comparison of Effluent Limits with the Previous Permit Amended on February 21, 2007

Table 24 Comparison of Previous and Proposed Effluent Limits

Parameter	Basis of Limit	PREVIOUS EFFLUENT LIMITS: OUTFALL # 001/002		PROPOSED EFFLUENT LIMITS: OUTFALL # 001/002	
		Average Monthly	Maximum Daily	Average Monthly	Average Weekly

Parameter	Basis of Limit	PREVIOUS EFFLUENT LIMITS: OUTFALL # 001/002		PROPOSED EFFLUENT LIMITS: OUTFALL # 001/002	
		Average Monthly	Maximum Daily	Average Monthly	Average Weekly
Biochemical Oxygen Demand (5-day)	Technology	26,570 lbs/day	49,660 lbs/day	26,921 lbs/day	50,249 lbs/day
Total Suspended Solids	Technology	45,144 lbs/day	85,768 lbs/day	43,599 lbs/day	83,103 lbs/day
AOX	Technology	1,657 lbs/day	2,530 lbs/day	1,562 lbs/day	2,385 lbs/day
Chloroform[a]	Technology	11.01 lbs/day	18.4 lbs/day	10.4 lbs/day	17.4 lbs/day
2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)	TMDL	N/A	0.56 mg/day	N/A	0.38 mg/day
		Limit		Limit	
pH	Technology	5.0 – 9.0		5.0 – 9.0	

[a] Compliance with chloroform limit is determined at the bleach plant discharge.

Parameter	Basis of Limit	PREVIOUS EFFLUENT LIMTS: OUTFALL # 005		PROPOSED EFFLUENT LIMITS: OUTFALL # 005	
		Average Monthly	Maximum Daily	Average Monthly	Maximum Daily
Biochemical Oxygen Demand (5-day)	Technology	35 mg/L 40 lbs/day	53 mg/L 60 lbs/day	30 mg/L	45 mg/L
Total Suspended Solids	Technology	45 mg/L 61 lbs/day	65 mg/L 92 lbs/day	30 mg/L	45 mg/L
		Monthly Geometric Mean Limit	Daily Maximum Limit	Monthly Geometric Mean Limit	Daily Maximum Limit
Fecal Coliform	Technology	200 #/100mL	400 #/100mL	200#/100mL	400 #/100mL
		Monthly Average		Monthly Average	
Removal of BOD_5 and TSS	Technology	N/A		85%	

Parameter	Basis of Limit	PREVIOUS EFFLUENT LIMTS: OUTFALL # 005	PROPOSED EFFLUENT LIMITS: OUTFALL # 005
		Limit	**Limit**
pH	Technology	6.0 – 8.5 at all times	6.0 – 8.5 at all times
		Minimum	**Minimum**
Total Residual Chlorine, following chlorination	Best Professional Judgment	0.3 mg/L	0.3 mg/L

Parameter	Basis of Limit	PREVIOUS EFFLUENT LIMTS: OUTFALL # 003		PROPOSED EFFLUENT LIMITS: OUTFALL # 003	
		Daily Average	**Daily Maximum**	**Average Monthly**	**Maximum Daily**
Oil and Grease	Best Professional Judgment	10 mg/L	15 mg/L No Visible Sheen	10 mg/L	15 mg/L
Settleable Solids	Best Professional Judgment	N/A	0.1 mL/L	N/A	0.1 mL/L
Biochemical Oxygen Demand (5-day)	Performance	N/A	N/A	3,600 lbs/day	17,500 lbs/day
Fecal Coliform	Performance	N/A	N/A	24,300 #/100mL	136,000 #/100mL
		Average Monthly Minimum	**Minimum Daily**	**Average Monthly Minimum**	**Minimum Daily**
Dissolved Oxygen	Performance	N/A	N/A	2.33 mg/L	1.34 mg/L
		Limit		**Limit**	
pH	Best Professional Judgment	6.0 – 9.0 at all times		6.0 – 9.0 at all times	

Parameter	Basis of Limit	PREVIOUS EFFLUENT LIMTS: OUTFALL # 004		PROPOSED EFFLUENT LIMITS: OUTFALL # 004	
		Daily Average	Daily Maximum	Average Monthly	Maximum Daily
Oil and Grease	Best Professional Judgment	10 mg/L	15 mg/L No Visible Sheen	10 mg/L	15 mg/L
Settleable Solids	Best Professional Judgment	N/A	0.1 mL/L	N/A	0.1 mL/L
Biochemical Oxygen Demand (5-day)	Performance	N/A	N/A	15.4 lbs/day	33.9 lbs/day
Fecal Coliform	Performance	N/A	N/A	380 #/100mL	1,390 #/100mL
		Average Monthly Minimum	Minimum Daily	Average Monthly Minimum	Minimum Daily
Dissolved Oxygen	Performance	N/A	N/A	1.31 mg/L	N/A
		Limit		Limit	
pH	Best Professional Judgment	6.0 – 9.0 at all times		6.0 – 9.0 at all times	

IV. Monitoring Requirements

Ecology requires monitoring, recording, and reporting (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and that the discharge complies with the permit's effluent limits.

If a facility uses a contract laboratory to monitor wastewater, it must ensure that the laboratory uses the methods and meets or exceeds the method detection levels required by the permit. The permit describes when facilities may use alternative methods. It also describes what to do in certain situations when the laboratory encounters matrix effects. When a facility uses an alternative method as allowed by the permit, it must report the test method, DL, and QL on the discharge monitoring report or in the required report.

A. Wastewater Monitoring

Weyerhaeuser Longview monitors for the pollutants listed under Special Condition S.2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

Ecology's Water Quality Program provides guidance for reducing monitoring frequencies in its Permit Writers' Manual. Permittees that satisfy a ratio of long term average (LTA) effluent concentration to the average monthly limit (AML) may be eligible for reductions. To remain eligible for these reductions the Permittee may NOT fail to submit any DMRs, violate the effluent limit of the pollutant with a reduced monitoring frequency, or be subject to a new formal enforcement action. Ecology may increase monitoring frequency for any of the above reasons through permit modification or Administrative Order.

Outfall 001/002

Weyerhaeuser Longview previously requested and received monitoring frequency reductions for BOD5, TSS, and AOX from Outfall 001/002. The existing permit requires monitoring frequencies of 1/week, 3/week, and 1/month for BOD_5, TSS, and AOX respectively.

On June 1, 2009, Weyerhaeuser Longview exceeded the daily maximum effluent limit of 49,660 lbs/day of BOD_5 triggering a permit violation of a pollutant with a reduced monitoring frequency. Ecology did not increase monitoring frequency following the violation.

On July 1, 2013, Weyerhaeuser Longview exceeded the daily maximum effluent limit of 49,660 lbs/day of BOD_5 due to a mill-wide power outage. An Ecology review of DMRs for BOD_5 effluent concentrations during the most recent two years shows a LTA-AML ratio less than 0.25. This ratio suggests the reduced monitoring frequency in the existing permit is acceptable and will be carried into the renewed permit. There have been no violations of TSS or AOX effluent limits.

In addition to monitoring frequency reductions, Weyerhaeuser Longview previously qualified and received a chloroform monitoring exemption per 40 CFR 430.02. Based on a minimum of 104 measurements taken over a period of no less than two years, Weyerhaeuser Longview demonstrated compliance with the limits for chloroform. Based on this demonstration, Ecology allowed Weyerhaeuser Longview certification in lieu of monitoring for chloroform and the established limits in the expiring permit which will be carried forward.

*Outfall 00*5

Weyerhaeuser Longview previously requested and received monitoring frequency reductions for BOD_5, TSS, and fecal coliform from Outfall 005. Based on "exemplary compliance" the mill was granted monitoring frequencies of 2/month, 1/month, and 1/month for BOD_5, TSS, and Fecal Coliform. The LTA-AML ratios for BOD_5, TSS, and fecal coliform are approximately 0.1, 0.01, and 0.005; these ratios suggest the reduced monitoring frequencies are acceptable and will be carried forward.

B. Lab Accreditation

Ecology requires that facilities must use a laboratory registered or accredited under the provisions of chapter 173-50 WAC, Accreditation of Environmental Laboratories, to prepare all monitoring data (with the exception of certain parameters). Ecology accredited the laboratory at this facility for:

Table 25 Accredited Parameters

General Chemistry				
Parameter Name	**Analyte Code**	**Method Description**	**NELAC Code**	**Matrix**
Turbidity	2055	EPA 180.1	10011402	W
Solids, Total Suspended	1960	SM 2540 D	20004802	W
Chlorine (Residual), Total	1940	SM4500-Cl G	20020604	W
pH	1900	SM 4500-H	20022406	W
Dissolved Oxygen	1880	SM 4500-O G	20025405	W
Biochemical Oxygen Demand (BOD)	1530	SM 5210 B	20027401	W
Chemical Oxygen Demand (COD)	1565	SM 5220 D	20136203	W

Microbiology				
Parameter Name	**Analyte Code**	**Method Description**	**NELAC Code**	**Matrix**
Fecal Coliform	2530	SM 9221 B (LTB) + E1 (EC) + C MPN	20188607	W

V. Other Permit Conditions

A. Reporting and Record Keeping

Ecology based Special Condition S3 on its authority to specify any appropriate reporting and record keeping requirements to prevent and control waste discharges (WAC 173-220-210).

B. Operation and Maintenance Manual

Ecology requires industries to take all reasonable steps to properly operate and maintain their wastewater treatment system in accordance with state and federal regulations [40 CFR 122.41(e) and WAC 173-220-150 (1)(g)]. The facility has prepared and submitted an operation and maintenance manual as required by state regulation for the construction of

wastewater treatment facilities (WAC 173-240-150). Ecology determined that the implementation of the Treatment System Operating Plan (TSOP) is a reasonable measure to ensure compliance with the terms of this permit. The Permittee is required to update the TSOP annually in accordance with Special Condition S4.A of the permit.

C. Non Routine and Unanticipated Discharges

Occasionally, this facility may generate wastewater which was not characterized in the permit application because it is not a routine discharge and was not anticipated at the time of application. These wastes typically consist of waters used to pressure-test storage tanks or fire water systems or of leaks from drinking water systems.

Special Condition S6 of the permit authorizes non-routine and unanticipated discharges under certain conditions. The facility must characterize these waste waters for pollutants and examine the opportunities for reuse. Depending on the nature and extent of pollutants in this wastewater and on any opportunities for reuse, Ecology may:

- Authorize the facility to discharge the wastewater.
- Require the facility to treat the wastewater.
- Require the facility to reuse the wastewater.

D. Spill Control Plan

This facility stores a quantity of chemicals on-site that have the potential to cause water pollution if accidentally released. Ecology can require a facility to develop best management plans to prevent this accidental release [Section 402(a)(1) of the Federal Water Pollution Control Act (FWPCA) and RCW 90.48.080].

Weyerhaeuser Longview developed a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs. Special Condition S7 of the proposed permit requires the facility to update this plan and submit it to Ecology.

E. Stormwater Pollution Prevention Plan (SWPPP)

In accordance with 40 CFR 122.44(k) and 40 CFR 122.44 (s), Special Condition S8 of the proposed permit includes requirements for the development and implementation of a SWPPP along with BMPs to minimize or prevent the discharge of pollutants to waters of the state. BMPs constitute Best Conventional Pollutant Control Technology (BCT) and Best Available Technology Economically Achievable (BAT) for stormwater discharges. A SWPPP requires a facility to implement actions necessary to manage stormwater to comply with the state's requirement under chapter 90.48 RCW to protect the beneficial uses of waters of the state.

The SWPPP must identify potential sources of stormwater contamination from industrial activities and identify how it plans to mange those sources of contamination to prevent or minimize contamination of stormwater. The Permittee must continuously review and revise the SWPPP as necessary to assure that stormwater discharges do not degrade water quality. It must retain the SWPPP on-site or within reasonable access to the site and available for review by Ecology.

Best Management Practices (BMPs)

BMPs are the actions identified in the SWPPP to manage, prevent contamination of, and treat stormwater. BMPs include schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs also include treatment systems, operating procedures, and practices used to control plant site runoff, spillage or leaks, sludge or waste disposal, and drainage from raw material storage. The Permittee must ensure that its SWPPP includes the operational and structural source control BMPs listed as "applicable" in Ecology's stormwater management manuals. Many of these "applicable" BMPs are sector-specific or activity-specific, and are not required at facilities engaged in other industrial sectors or activities.

Ecology-Approved Stormwater Management Manuals

Consistent with RCW 90.48.555 (5) and (6), the proposed permit requires the facility to implement BMPs contained in the Stormwater Management Manual for Western Washington (*2005* edition), or any revisions thereof, or practices that are demonstrably equivalent to practices contained in stormwater technical manuals approved by Ecology. This should ensure that BMPs will prevent violations of state water quality standards, and satisfy the state AKART requirements and the federal technology-based treatment requirements under 40 CFR part 125.3. The SWPPP must document that the BMPs selected provide an equivalent level of pollution prevention, compared to the applicable Stormwater Management Manuals, including: The technical basis for the selection for all stormwater BMPs (scientific, technical studies, and/or modeling) which support the performance claims for the BMPs selected.

An assessment of how the BMPs will satisfy AKART requirements and the applicable technology-based treatment requirements under 40 CFR part 125.3.

Operational Source Control BMPs

Operational source control BMPs include a schedule of activities, prohibition of practices, maintenance procedures, employee training, good housekeeping, and other managerial practices to prevent or reduce the pollution of waters of the state. These activities do not require construction of pollution control devices but are very important components of a successful SWPPP. Employee training, for instance, is critical to achieving timely and consistent spill response. Pollution prevention is likely to fail if the employees do not understand the importance and objectives of BMPs. Prohibitions might include eliminating outdoor repair work on equipment and certainly would include the elimination of intentional draining of crankcase oil on the ground. Good housekeeping and maintenance schedules help prevent incidents that could result in the release of pollutants. Operational BMPs represent a cost-effective way to control pollutants and protect the environment. The SWPPP must identify all the operational BMPs and how and where they are implemented. For example, the SWPPP must identify what training will consist of, when training will take place, and who is responsible to assure that employee training happens.

Structural Source Control BMPs

Structural source control BMPs include physical, structural, or mechanical devices or facilities intended to prevent pollutants from entering stormwater. Examples of source control BMPs include erosion control practices, maintenance of stormwater facilities (e.g.,

cleaning out sediment traps), construction of roofs over storage and working areas, and direction of equipment wash water and similar discharges to the sanitary sewer or a dead end sump. Structural source control BMPs likely include a capital investment but are cost effective compared to cleaning up pollutants after they have entered stormwater.

Treatment BMPs

Operational and structural source control BMPs are designed to prevent pollutants from entering stormwater. However, even with an aggressive and successful program, stormwater may still require treatment to achieve compliance with water quality standards. Treatment BMPs remove pollutants from stormwater. Examples of treatment BMPs are detention ponds, oil/water separators, biofiltration, and constructed wetlands.

Volume/Flow Control BMPs

Ecology recognizes the need to include specific BMP requirements for stormwater runoff quantity control to protect beneficial water uses, including fish habitat. New facilities and existing facilities undergoing redevelopment must implement the requirements for peak runoff rate and volume control identified by volume 1 of the *Western Washington SWMM* and chapter 2 in the *Eastern Washington SWMM* as applicable to their development. Chapter 3 of volume 3 *Western Washington SWMM* and chapter 6 in the *Eastern Washington SWMM* lists BMPs to accomplish rate and volume control. Existing facilities in western Washington should also review the requirements of volumes 1 (Minimum Technical Requirements) and chapter 3 of volume 3 in the *Western Washington SWMM*. Chapter 2 (Core Elements for New Development and Redevelopment) in the *Eastern Washington SWMM* contains the minimum technical requirements for facilities east of the Cascades. Although not required to implement these BMPs, controlling rate and volume of stormwater discharge maintains the health of the watershed. Existing facilities should identify control measures that they can implement over time to reduce the impact of uncontrolled release of stormwater.

F. Best Management Practices Plan

Special Condition S9 of the proposed permit requires the Permittee to develop and implement a Best Management Practices (BMP) plan to prevent spills and leaks of spent pulping, liquor, soap, and turpentine. The BMPs for spill and leak prevention are defined in 40 CFR 430.03.

G. Solid Waste Control Plan

The Permittee could cause pollution of the waters of the state through inappropriate disposal of solid waste or through the release of leachate from solid waste.

Special Condition S10 of the proposed permit requires this facility to update the approved solid waste control plan designed to prevent solid waste from causing pollution of waters of the state. The facility must submit the updated plan to Ecology for approval (RCW 90.48.080). You can obtain an Ecology guidance document, which describes how to develop a Solid Waste Control Plan, at: http://www.ecy.wa.gov/pubs/0710024.pdf

H. Wastewater Treatment System Efficiency Study

The proposed permit requires the Permittee to conduct and submit a treatment system efficiency study to Ecology (Special Condition S11). The purpose of the study is to ensure that the wastewater treatment system is operating efficiently.

I. Water Supply Plant Discharge AKART Analysis

The Permittee was previously authorized to discharge filter plant backwash and sediments from the raw water treatment system to the Columbia River. The basis for this determination was the unique suspended solids loading in the intake water caused by the eruption of Mt. St. Helens, as determined by the Pollution Control Hearings Board in PCHB No. 85-220.

Since it has been almost 30 years since the PCHB decision, Ecology is requiring that the Permittee conduct and submit an AKART analysis for the discharge. The analysis will also analyze the effect the discharge has on the receiving water quality. Requirements of the study are included in Special Condition S12.

J. Cooling Water Intake Report

In accordance with section 316(b) of the Clean Water Act and 40 CFR 125.90(b), Ecology is required to ensure that the "location, design, construction, and capacity of the cooling water intake structure reflect the best technology available for minimizing adverse environmental impact;" as determined on a case-by-case, best professional judgment (BPJ) basis. For Ecology to make a BPJ determination of what constitutes the best technology available, more information regarding the Permittee's cooling water intake structure is required.

Ecology is requiring the Permittee to submit a "Cooling water intake report" to evaluate the intake structure's location, design, construction, and capacity with respect to the best technology available to minimize adverse environmental impacts. The report is further detailed in Special Condition S13.

Special condition S12 requires the Permittee to perform a "Water supply plant discharge AKART analysis." This analysis may evaluate alternatives which include modifications to the intake structure. Within this analysis, the Permittee may include a best technology available analysis of the existing or alternative intake structure. The best technology analysis should include the information prescribed in Special Condition S13, for Ecology review and approval. In the event that the Permittee provides sufficient information for Ecology to make a BPJ, best technology available determination regarding the cooling water intake and section 316(b) of the Clean Water Act, the submittal of a "Cooling water intake report" will not be required.

K. Outfall 003 and 004 AKART Study

The proposed permit requires the Permittee to conduct and submit an outfall 003 and 004 AKART study to Ecology. The purpose of the study is to ensure that the stormwater and process water management practices meet AKART standards. The study must analyze source control and treatment BMPs utilized by the Permittee and the feasibility of alternative BMPs and technologies. Upon completion of Ecology review and approval, Weyerhaeuser Longview and Ecology will establish a compliance schedule for implementation of the reasonable stormwater and process water management improvements identified in the study. Detailed requirements of this study are included in Special Condition S14.

L. Outfall Evaluation

The proposed permit requires the Permittee to conduct an outfall inspection and submit a report detailing the findings of that inspection (Special Condition S16). The inspection must

evaluate the physical condition of the discharge pipe and diffusers, and evaluate the extent of sediment accumulations in the vicinity of the outfall.

M. Priority Pollutant Scan

The Permittee must sample the final effluent and analyze for priority pollutants on an annual basis. The priority pollutants are listed in Special Condition S2.A of the permit. Required detection limits and laboratory methods are listed in Appendix A of the permit.

N. General Conditions

Ecology bases the standardized General Conditions on state and federal law and regulations. They are included in all individual industrial NPDES permits issued by Ecology.

VI. Permit Issuance Procedures

A. Permit Modifications

Ecology may modify this permit to impose numerical limits, if necessary to comply with water quality standards for surface waters, with sediment quality standards, or with water quality standards for groundwaters, after obtaining new information from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

Ecology may also modify this permit to comply with new or amended state or federal regulations.

B. Proposed Permit Issuance

This proposed permit includes all statutory requirements for Ecology to authorize a wastewater discharge. The permit includes limits and conditions to protect human health and aquatic life, and the beneficial uses of waters of the state of Washington. Ecology proposes to issue this permit for a term of 5 years.

VII. REFERENCES FOR TEXT AND APPENDICES

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Appendix A--Public Involvement Information

Ecology proposes to reissue a permit to Weyerhaeuser Longview. The permit includes wastewater discharge limits and other conditions. This fact sheet describes the facility and Ecology's reasons for requiring permit conditions.

Ecology will place a Public Notice of Draft on November 18, 2013 in The Daily News, Longview to inform the public and to invite comment on the proposed draft National Pollutant Discharge Elimination System permit and fact sheet.

The notice:

- Tells where copies of the draft Permit and Fact Sheet are available for public evaluation (a local public library, the closest Regional or Field Office, posted on our website).
- Offers to provide the documents in an alternate format to accommodate special needs.
- Urges people to submit their comments, in writing, before the end of the Comment Period.
- Tells how to request a public hearing of comments about the proposed NPDES permit.
- Explains the next step(s) in the permitting process.

Ecology published a document entitled *Frequently Asked Questions about Effective Public Commenting* which is available on our website at https://fortress.wa.gov/ecy/publications/SummaryPages/0307023.html.

You may obtain further information from Ecology by telephone, (360) 407-6916 or by writing to the address listed below.

Water Quality Permit Coordinator
Department of Ecology
Industrial Section
PO Box 47600
Olympia, WA 98504-7600

The primary author of this permit and fact sheet is Shingo Yamazaki.

Appendix B--Your Right to Appeal

You have a right to appeal this permit to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of the final permit. The appeal process is governed by chapter 43.21B RCW and chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do the following within 30 days of the date of receipt of this permit:

- File your appeal and a copy of this permit with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this permit on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in chapter 43.21B RCW and chapter 371-08 WAC.

ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608
Pollution Control Hearings Board 1111 Israel RD SW STE 301 Tumwater, WA 98501	**Pollution Control Hearings Board** PO Box 40903 Olympia, WA 98504-0903

Appendix C--Glossary

1-DMax or 1-Day Maximum Temperature -- The highest water temperature reached on any given day. This measure can be obtained using calibrated maximum/minimum thermometers or continuous monitoring probes having sampling intervals of thirty minutes or less.

7-DADMax or 7-Day Average of the Daily Maximum Temperatures -- The arithmetic average of seven consecutive measures of daily maximum temperatures. The 7-DADMax for any individual day is calculated by averaging that day's daily maximum temperature with the daily maximum temperatures of the three days prior and the three days after that date.

Acute Toxicity --.The lethal effect of a compound on an organism that occurs in a short time period, usually 48 to 96 hours.

AKART -- The acronym for "all known, available, and reasonable methods of prevention, control and treatment." AKART is a technology-based approach to limiting pollutants from wastewater discharges, which requires an engineering judgment and an economic judgment. AKART must be applied to all wastes and contaminants prior to entry into waters of the state in accordance with RCW 90.48.010 and 520, WAC 173-200-030(2)(c)(ii), and WAC 173-216-110(1)(a).

Alternate Point of Compliance -- An alternative location in the groundwater from the point of compliance where compliance with the groundwater standards is measured. It may be established in the groundwater at locations some distance from the discharge source, up to, but not exceeding the property boundary and is determined on a site specific basis following an AKART analysis. An "early warning value" must be used when an alternate point is established. An alternate point of compliance must be determined and approved in accordance with WAC 173-200-060(2).

Ambient Water Quality -- The existing environmental condition of the water in a receiving water body.

Ammonia -- Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Annual Average Design Flow (AADF) -- Average of the daily flow volumes anticipated to occur over a calendar year.

Average Monthly (Intermittent) Discharge Limit-- The average of the measured values obtained over a calendar months time taking into account zero discharge days.

Average Monthly Discharge Limit -- The average of the measured values obtained over a calendar month's time.

Background Water Quality -- The concentrations of chemical, physical, biological or radiological constituents or other characteristics in or of groundwater at a particular point in time upgradient of an activity that has not been affected by that activity, [WAC 173-200-020(3)]. Background water quality for any parameter is statistically defined as the 95% upper tolerance interval with a 95% confidence based on at least eight hydraulically upgradient water quality samples. The eight samples are collected over a period of at least one year, with no more than one sample collected during any month in a single calendar year.

Best Management Practices (BMPs) -- Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD5 -- Determining the five-day Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD5 is used in modeling to measure the reduction of dissolved oxygen in receiving waters after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD_5 is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass -- The intentional diversion of waste streams from any portion of a treatment facility.

Categorical Pretreatment Standards -- National pretreatment standards specifying quantities or concentrations of pollutants or pollutant properties, which may be discharged to a POTW by existing or new industrial users in specific industrial subcategories.

Chlorine -- A chemical used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity -- The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA) -- The federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Compliance Inspection-Without Sampling -- A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection-With Sampling -- A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations. In addition it includes as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Ecology may conduct additional sampling.

Composite Sample -- A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite" (collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots).

Construction Activity -- Clearing, grading, excavation, and any other activity, which disturbs the surface of the land. Such activities may include road building; construction of residential houses, office buildings, or industrial buildings; and demolition activity.

Continuous Monitoring -- Uninterrupted, unless otherwise noted in the permit.

Critical Condition -- The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Date of Receipt -- This is defined in RCW 43.21B.001(2) as five business days after the date of mailing; or the date of actual receipt, when the actual receipt date can be proven by a preponderance of the evidence. The recipient's sworn affidavit or declaration indicating the date of receipt, which is unchallenged by the agency, constitutes sufficient evidence of actual receipt. The date of actual receipt, however, may not exceed forty-five days from the date of mailing.

Detection Limit -- The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the pollutant concentration is above zero and is determined from analysis of a sample in a given matrix containing the pollutant.

Dilution Factor (DF) -- A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the percent effluent fraction, for example, a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Distribution Uniformity -- The uniformity of infiltration (or application in the case of sprinkle or trickle irrigation) throughout the field expressed as a percent relating to the average depth infiltrated in the lowest one-quarter of the area to the average depth of water infiltrated.

Early Warning Value -- The concentration of a pollutant set in accordance with WAC 173-200-070 that is a percentage of an enforcement limit. It may be established in the effluent, groundwater, surface water, the vadose zone or within the treatment process. This value acts as a trigger to detect and respond to increasing contaminant concentrations prior to the degradation of a beneficial use.

Enforcement Limit -- The concentration assigned to a contaminant in the groundwater at the point of compliance for the purpose of regulation, [WAC 173-200-020(11)]. This limit assures that a groundwater criterion will not be exceeded and that background water quality will be protected.

Engineering Report -- A document that thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report must contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria -- Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample -- A single sample or measurement taken at a specific time or over as short a period of time as is feasible.

Groundwater -- Water in a saturated zone or stratum beneath the surface of land or below a surface water body.

Industrial User -- A discharger of wastewater to the sanitary sewer that is not sanitary wastewater or is not equivalent to sanitary wastewater in character.

Industrial Wastewater -- Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business; from the development of any natural resource; or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Interference -- A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

- Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and

- Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Local Limits -- Specific prohibitions or limits on pollutants or pollutant parameters developed by a POTW.

Major Facility -- A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limit -- The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Maximum Day Design Flow (MDDF) -- The largest volume of flow anticipated to occur during a one-day period, expressed as a daily average.

Maximum Month Design Flow (MMDF) -- The largest volume of flow anticipated to occur during a continuous 30-day period, expressed as a daily average.

Maximum Week Design Flow (MWDF) -- The largest volume of flow anticipated to occur during a continuous 7-day period, expressed as a daily average.

Method Detection Level (MDL) -- See Method Detection Level.

Minor Facility -- A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone -- An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The permit specifies the area of the authorized mixing zone that Ecology defines following procedures outlined in state regulations (chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES) -- The NPDES (Section 402 of the Clean Water Act) is the federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the state of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both state and federal laws.

pH -- The pH of a liquid measures its acidity or alkalinity. It is the negative logarithm of the hydrogen ion concentration. A pH of 7 is defined as neutral and large variations above or below this value are considered harmful to most aquatic life.

Pass-Through -- A discharge which exits the POTW into waters of the State in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of State water quality standards.

Peak Hour Design Flow (PHDF) -- The largest volume of flow anticipated to occur during a one-hour period, expressed as a daily or hourly average.

Peak Instantaneous Design Flow (PIDF) -- The maximum anticipated instantaneous flow.

Point of Compliance -- The location in the groundwater where the enforcement limit must not be exceeded and a facility must comply with the Ground Water Quality Standards. Ecology determines this limit on a site-specific basis. Ecology locates the point of compliance in the groundwater as near and directly downgradient from the pollutant source as technically, hydrogeologically, and geographically feasible, unless it approves an alternative point of compliance.

Potential Significant Industrial User (PSIU) --A potential significant industrial user is defined as an Industrial User that does not meet the criteria for a Significant Industrial User, but which discharges wastewater meeting one or more of the following criteria:

a. Exceeds 0.5 % of treatment plant design capacity criteria and discharges <25,000 gallons per day or;

b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).
Ecology may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

Quantitation Level (QL) -- Also known as Minimum Level of Quantitation (ML) – The lowest level at which the entire analytical system must give a recognizable signal and acceptable calibration point for the analyte. It is equivalent to the concentration of the lowest calibration

standard, assuming that the lab has used all method-specified sample weights, volumes, and cleanup procedures. The QL is calculated by multiplying the MDL by 3.18 and rounding the result to the number nearest to (1,2,or 5) x 10^n, where n is an integer. (64 FR 30417).
ALSO GIVEN AS:
The smallest detectable concentration of analyte greater than the Detection Limit (DL) where the accuracy (precision & bias) achieves the objectives of the intended purpose. (Report of the Federal Advisory Committee on Detection and Quantitation Approaches and Uses in Clean Water Act Programs Submitted to the US Environmental Protection Agency December 2007).

Reasonable Potential -- A reasonable potential to cause a water quality violation, or loss of sensitive and/or important habitat.

Responsible Corporate Officer -- A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

Significant Industrial User (SIU) --

1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N and;

2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement [in accordance with 40 CFR 403.8(f)(6)].

Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

*The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs.

Slug Discharge -- Any discharge of a non-routine, episodic nature, including but not limited to an accidental spill or a non-customary batch discharge to the POTW. This may include any pollutant released at a flow rate that may cause interference or pass through with the POTW or in any way violate the permit conditions or the POTW’s regulations and local limits.

Soil Scientist -- An individual who is registered as a Certified or Registered Professional Soil Scientist or as a Certified Professional Soil Specialist by the American Registry of Certified Professionals in Agronomy, Crops, and Soils or by the National Society of Consulting

Scientists or who has the credentials for membership. Minimum requirements for eligibility are: possession of a baccalaureate, masters, or doctorate degree from a U.S. or Canadian institution with a minimum of 30 semester hours or 45 quarter hours professional core courses in agronomy, crops or soils, and have 5,3,or 1 years, respectively, of professional experience working in the area of agronomy, crops, or soils.

Solid Waste -- All putrescible and non-putrescible solid and semisolid wastes including, but not limited to, garbage, rubbish, ashes, industrial wastes, swill, sewage sludge, demolition and construction wastes, abandoned vehicles or parts thereof, contaminated soils and contaminated dredged material, and recyclable materials.

Soluble BOD_5 -- Determining the soluble fraction of Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of soluble organic material present in an effluent that is utilized by bacteria. Although the soluble BOD_5 test is not specifically described in Standard Methods, filtering the raw sample through at least a 1.2 um filter prior to running the standard BOD_5 test is sufficient to remove the particulate organic fraction.

State Waters -- Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater -- That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-Based Effluent Limit -- A permit limit based on the ability of a treatment method to reduce the pollutant.

Total Coliform Bacteria -- A microbiological test, which detects and enumerates the total coliform group of bacteria in water samples.

Total Dissolved Solids--That portion of total solids in water or wastewater that passes through a specific filter.

Total Maximum Daily Load (TMDL) -- A determination of the amount of pollutant that a water body can receive and still meet water quality standards.

Total Suspended Solids (TSS) -- Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Upset -- An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limits because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-Based Effluent Limit -- A limit imposed on the concentration of an effluent parameter to prevent the concentration of that parameter from exceeding its water quality criterion after discharge into receiving waters.

Appendix D--Technical Calculations

TECHNOLOGY-BASED LIMITS:

Effluent limits for Outfall 001/002 were calculated using production data from the year 2012 and federal effluent guidelines. Bleached Paperboard, Wet Lap, and Bleached Kraft Pulp (sent to NORPAC) values were provided by Weyerhaeuser NR Company to Ecology by email correspondence. The remaining production values were obtained from 2012 discharge monitoring reports.

The initial 565 average daily tons (ADT) of thermo-mechanical pulp at NORPAC II falls under BPT guidelines, the remainder falls under NSPS in accordance with a prior Ecology-Weyerhaeuser agreement.

Table 26 Outfall 001/002 Limits

Operation	Production	Production Units	40 CFR…	Limit (BCT, BAT, BPT, NSPS)	BOD5				TSS			
					Daily Max		Monthly Avg.		Daily Max		Monthly Avg.	
					lb/ton	lb/day	lb/ton	lb/day	lb/ton	lb/day	lb/ton	lb/day
KRAFT MILL		--	--	--	--	--	--	--	--	--	--	--
Bleached Paperboard	830	MDT	430 Subpart B	NSPS	17	**14110**	9.2	**7636**	29.2	**24236**	15.2	**12616**
Wet Lap Pulp	365	ADT	430 Subpart B	NSPS	20.6	**7519**	11	**4015**	36.4	**13286**	19	**6935**
NORPAC	--	--	--		--	--	--	--	--	--	--	--
Bleached Kraft Pulp	61	ADT	430 Subpart B	NSPS	20.6	**1257**	11	**671**	36.4	**2220**	19	**1159**
Deink Newsprint Pulp	277	ADT	430 Subpart I	NSPS	12	**3324**	6.4	**1773**	24	**6648**	12.6	**3490**
TMP Pulp	1311	ADT	430 Subpart G	NSPS	9.2	**12061**	5	**6555**	14.6	**19141**	7.6	**9964**
TMP Pulp	565	ADT	430 Subpart G	BPT	21.2	**11978**	11.1	**6272**	31.1	**17572**	16.7	**9436**
TOTAL	**3,409**					**50,249**		**26,921**		**83,103**		**43,599**

Table 27 AOX and Chloroform Limits

Operation	Production	Production Units	40 CFR…	Limit (BCT, BAT, BPT, NSPS)	AOX				CHLOROFORM			
					Daily Max		Monthly Avg.		Daily Max		Monthly Avg.	
					lb/ton	lb/day	lb/ton	lb/day	lb/ton	lb/day	lb/ton	lb/day
Unbleached Pulp (Kraft)	1254	ADT	430 Subpart B	BAT	1.902	**2385**	1.246	**1562**	0.01384	**17.4**	0.00828	**10.4**

TOTAL MAXIMUM DAILY LOAD LIMITS:

EPA Region X, established a Total Maximum Daily Load (TMDL) to limit discharges of dioxin to the Columbia River basin. The TMDL established loading limits for 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). Ecology used EPA's *Technical Support Document for Water Quality-based Toxics Control* (EPA 505/2-90-001) as guidance for calculating the maximum daily limit for the protection of human health. The full table of multipliers is provided in Table 5-3 of the above mentioned document. The conversion of the Weyerhaeuser Longview waste load allocation (WLA) to a Maximum Daily Limit (MDL) is shown below.

Table 28 TCDD Limit

WLA Dioxin (TCDD) mg/day	CV	Number of Sample per Month (n)	Multiplier	Maximum Daily Limit (MDL) mg/day
0.26	0.6	1	1.46	**0.38**

REASONABLE POTENTIAL ANALYSIS:

Several of the Excel® spreadsheet tools used to evaluate a discharger's ability to meet Washington State water quality standards can be found in the PermitCalc Workbook on Ecology's webpage at: http://www.ecy.wa.gov/programs/wq/permits/guidance.html.

The spreadsheets Input 2 – Reasonable Potential and LimitCalc in Ecology's PermitCalc Workbook determine reasonable potential (to violate the aquatic life and human health water quality standards) and calculate effluent limits. The process and formulas for determining reasonable potential and effluent limits in these spreadsheets are taken directly from the *Technical Support Document for Water Quality-based Toxics Control*, (EPA 505/2-90-001). The adjustment for autocorrelation is from EPA (1996a), and EPA (1996b).

Table 29 Reasonable Potential Analysis for Aquatic Life

Parameter	Ambient Concentration ug/L	State Water Quality Standard		Max concentration at edge of...		Max effluent conc. ug/L	Acute Dil'n Factor	Chronic Dil'n Factor	LIMIT REQ'D?
		Acute ug/L	Chronic ug/L	Acute Mixing Zone ug/L	Chronic Mixing Zone ug/L				
Aluminum	4.5	750	100000	286	50	760.0	16.7	103	**NO**

Table 30 Reasonable Potential Analysis for Human Health

Parameter	Ambient Concentration ug/L	State Water Quality Standards ug/L	Max concentration at edge of... Chronic Mixing Zone ug/L	Max effluent conc. ug/L	Calculated 50th Percentile Effluent Conc. ug/L	Dil'n Factor	LIMIT REQ'D?
Chloroform	0.0	5.70	0.13	85	13	103	**NO**

OUTFALL 003 AND 004 PERFORMANCE-BASED LIMITS:

Limits were established using sample data from discharge monitoring reports for the years 2010, 2011, and 2012. All percentile calculations used year 2012 data values. Calculations for dissolved oxygen for Outfall 003 and all parameters for Outfall 004 used additional data values from the years 2010 and 2011. The number of years of data used was based on the size of the data set required to ensure a representative characterization of the discharge.

Data collected for BOD_5 and fecal coliform were non-normally distributed. BOD_5 and fecal coliform data values were natural-log transformed; means, standard deviations, and percentiles calculated; and then calculated percentiles transformed back to numerical limits. Dissolved oxygen data was normally distributed and required no transformation.

Monthly and daily limits were based on 95 and 99-percentile values. The 99-percentile value for dissolved oxygen at Outfall 004 is below zero. Therefore no minimum for daily minimum for dissolved oxygen at Outfall 004 is proposed.

Table 31 Stormwater Performance-Based Limits

	003			004		
	BOD_5 lbs/day	**Dissolved Oxygen** mg/L	**Fecal Coliform** #/100mL	**BOD_5** lbs/day	**Dissolved Oxygen** mg/L	**Fecal Coliform** #/100mL
Mean	N/A	4.74	N/A	N/A	4.84	N/A
Standard Deviation	N/A	1.46	N/A	N/A	2.15	N/A
Mean[ln()]	4.37	N/A	5.94	0.84	N/A	2.82
Standard Deviation[ln()]	2.32	N/A	2.53	1.15	N/A	1.90
ln(95%)	8.18	N/A	10.1	2.74	N/A	5.9
ln(99%)	9.77	N/A	11.8	3.52	N/A	7.2
95%	**3604**	**2.33**	**24330**	**15.4**	**1.31**	**380**
99%	**17516**	**1.34**	**136101**	**33.9**	**-0.16**	**1385**

Appendix E--Response to Comments

[Ecology will complete this section after the public notice of draft period.]